CRUSTACEA.

PART V.

AMPHIPODA.

By The Rev. THOMAS R. R. STEBBING, M.A., F.R.S., F.L.S., F.Z.S., Hon. Member New Zealand Institute, Fellow of King's College London, Hon. Fellow of Worcester College, Oxford.

NOTICE.

The Plates belonging to Mr. Stebbing's Paper on Amphipoda follow after Plate No. lviii., and are numbered xlvii.* to lx.*

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The present Report is not concerned with a large number of new species. Of these there are only thirteen. They are distributed among the same number of genera, of which three are new. Incidentally also a new genus, *Parawaldeckia*, is instituted for a species previously called *Nannonyx thomsoni*, from New Zealand, and not as yet recorded in Australian waters. The new genus *Ochlesis* is worthy of note, since by the character of its maxillipeds it forms a link between the Gammaridea and the Hyperiidea. For this reason it appears to justify the institution of a new family, the Ochlesidæ. In all, forty-four species have been identified among the specimens of the "Thetis" collection. In the genera *Eusiroides*, *Eurystheus* and *Icilius*, it is possible that future stringency of specific determination may reduce the number of species here noted. Some reductions in regard to other genera are suggested in the report itself. Thus, the genus *Vijaya*, Walker, 1904, is made a synonym of Haswell's *Amaryllis*, and Walker's *Gallea tecticauda*, of the same date, loses its significant specific name by identification with Haswell's earlier *Cyproidea ornata*.

For the preoccupied *Eurystheus dentatus*, Holmes, *E. alaskensis* is proposed.

Various problems in regard to Australian Amphipoda remain still unsolved, but the two species *Paradexamine flindersi* and *Dryopoides westwoodi*, of which the "Challenger" Expedition obtained a lamentably scanty supply, are now indebted to the "Thetis" specimens for their proper places in classification. Some strange cases of superficial resemblance and actual diversity are afforded by *Iphimedia ambigua*, Haswell, and *Iphimedia discreta*, sp.nov., in one and the same genus, and by *Lœtmatophilus hystrix* (Haswell), and *Podocerus hystrix*, sp.nov., in two neighbouring genera. In *Melita fresnelii* (Audouin), *Paracerodocus micramphopus*, sp.nov., and *Ceradocus rubromaculatus* (Stimpson), the striking fretwork of the pleon segments is an ensnaring temptation to mix up species which require to be sorted apart. As noticed under *Eurystheus thomsoni*, the gnathopods

of species otherwise quite distinct seem to have been turned out of the same mould. No doubt the same might be said of less characteristic appendages, but in these it does not attract attention. It is singular that, so soon after Dr. Paul Mayer's institution of a new species of *Dodecas* from Australian waters, a third species from the same locality should now be added to the same small genus.

An attempt is here made to recapitulate all the species of Amphipoda as yet described from Australian and Tasmanian waters. For the tribe or legion of the Gammaridea the order adopted is that followed in my Amphipoda Gammaridea, "Das Tierreich," Lieferung 21, 1906; for that of the Caprellidea, Dr. Paul Mayer's admirable work, "Siboga-Expeditie," Monographie 34, Die Caprellidæ, 1903; and for the Hyperiidea, the "Challenger Reports," vol. xxix., 1888.

The reckoning amounts to one hundred and eighty-two species. A few of these at present are not very clearly established. But that defect will no doubt before long be remedied, and there is good reason to expect that in course of time numerous additions will be made to the inventory here presented.

In forcing specific names into concord with generic terminations I have followed the ruling of "Das Tierreich," though I have long advocated the simpler plan of assuming that all species in zoology are of the masculine gender. The old rule complicates synonymy when a species is moved from one genus to another, and involves the biologist in many needless anxieties. What is he to do, for example, with such a genus as *Cepon*, which is not a neuter word, but the genitive plural of a masculine, being the Greek rendering of the French proper name Desjardins? Even under the rule, as may be seen in this report, an insidious technicality makes it wrong to say *Streetsia porcella*, because the substantive *porcellus* is on a different footing from that of the adjectival *pusillus*. But puerilities have long lives.

AMPHIPODA.

Family LYSIANASSIDÆ.

Lysianassidæ, Buchholz, Zweite Deutsche Nordpolarfahrt, ii., 1874, p. 299.

Lysianassidæ, Stebbing, Das Tierreich, xxi., 1906, pp. 8, 717.

Lysianassidæ, Walker, Nat. Antarct. Exp., iii., 1907, pp. 3, 9.

This family has no competitor in size among the Gammaridea except the Gammaridæ. In "Das Tierreich" forty-nine genera are

defined as belonging to it, and two others are named as still obscure. The Appendix adds *Schisturella*, Norman, 1900; *Lysianopsis*, Holmes, 1903; *Parambasia*, Walker and Scott, 1903; *Paracallisoma*, Chevreux, 1903; *Vijaya*, Walker, 1904; *Socarnella*, Walker, 1904; *Paracyphocaris*, Chevreux, 1905; *Katius*, Chevreux, 1905; *Charcotia*, Chevreux, 1906; *Podoprionides*, Walker, 1906. To these have been added in 1908, *Paralicella*, Chevreux, and *Valettiopsis*, *Lakota*, *Koroga*, and *Aruga*, all instituted by Professor S. J. Holmes. The preoccupied name *Charcotia* was relinquished by Chevreux in 1906 in favour of *Waldeckia*, and in discussing that genus I am here led to propose another, *Parawaldeckia*, for the New Zealand species named *Nannonyx thomsoni*[1]. As *Vijaya* falls out, there are now sixty-four genera provisionally accepted for this family. The boundaries between some of them are not very strongly marked, so that a future revision may lead to the disappearance of a name here and there. Tattersall's *Metacyphocaris* and *Crybelocephalus*, 1906, seem scarcely within the limits.

Mr. A. O. Walker in his Amphipoda of the National Antarctic Expedition[2] remarks that:—"As in the Arctic Amphipoda, the Lysianassidæ greatly preponderate in the number of genera, species and individuals, in one case amounting to tens of thousands of these last on several occasions." The "Thetis" collection, from a very different latitude, offers a rather striking contrast. For though three genera of this family are represented, each afforded only a single species, one indeed, fairly abundant in specimens, but the other two having only three between them.

Genus AMARYLLIS, *Haswell.*

Amaryllis, Haswell, Proc. Linn. Soc. N.S.Wales, iv., 1879, p. 253.

Vijaya, A. O. Walker, Rep. Ceylon Pearl Oyster Fish., ii., 1904, pp. 231, 241.

Amaryllis, Stebbing, Das Tierreich, xxi., 1906, p. 23.

AMARYLLIS MACROPHTHALMA, *Haswell.*

Stations 28, 35, 37, 44, 57.

Amaryllis macrophthalmus, Haswell, Proc. Linn. Soc. N.S.Wales, iv., 1879, p. 253, pl. viii, fig. 3, a, b, c, d.

Amaryllis brevicornis, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1879, p. 254.

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[1] See p. 571.

[2] Walker—Nat. Antarctic Exp., iii., 1907, p. 1.

Glycerina affinis, Chilton, Proc. Linn. Soc. N.S. Wales, ix., 1885, p. 1036, pl. xlvii., fig. 1, a, b.

Amaryllis macrophthalmus, Chilton, Trans. N. Zealand Inst., xxxviii., 1906, p. 267.

Amaryllis macrophthalma, Stebbing, Das Tierreich, xxi., 1906, p. 24.

Amaryllis macrophthalma, A. O. Walker, Trans. Linn. Soc., xii., 1909, part 4, p. 327.

In 1904, Mr. A. O. Walker distinguished a genus *Vijaya* from *Amaryllis* by the character that it has the upper antennæ in the male with the first joint of the flagellum much longer than any of the succeeding joints and very setose. He remarks that "the curious difference in the male and female antennæ makes a new genus necessary." This called my attention to the desirability of examining a male specimen of *Amaryllis macrophthalma*, and the "Thetis" collection has furnished the opportunity. It proves that the difference in question occurs between the sexes of that species, so that the necessity for *Vijaya* is discharged. *Amaryllis tenuipes* (Walker), however, remains specifically distinct, since, unlike any other species of the genus, it has the anterior angle of the fourth side-plate of the peraeon acutely produced forward.

Localities.—Off Manning River; off Port Hacking; Botany Bay, 50 to 52 fathoms; off Coogee; off Wata Mooli, 54 to 59 fathoms. Mr. A. O. Walker notes its occurrence at Wasin, British East Africa, taken at a depth of 10 fathoms. It appears to be an abundant Australian species.

Genus WALDECKIA, *Chevreux*.

Charcotia, Chevreux, Bull. Soc. Zool. Fr., xxx., 1905, p. 163.

Charcotia, Walker, Ann. Mag. Nat. Hist., (7), xvii., 1906, p. 454.

Charcotia, Stebbing, Das Tierreich, xxi., 1906, p. 718.

Waldeckia, Chevreux, Exp. Antarct. Française, Amphip., 1906, p. 13.

Waldeckia, Walker, Nat. Antarct. Exp., iii., 1907, Amphipoda, p. 10.

M. Chevreux, finding that the name *Charcotia* was pre-occupied, adopted in place of it *Waldeckia*, in compliment to Mme. Waldeck-Rousseau, Dr. Jean Charcot's sister. At the same time he distinguished the generic characters from those of the typical species, *W. obesa*, as follows:—

Body extremely obese, integument thick and hard. Side-plates remarkably deep, those of the fifth pair not bilobed.

Antennæ short, sub-equal. Epistome separated from the upper lip by a deep sinus. Mandibles little developed, palp affixed close to the base of the trunk. Outer plate of first maxillæ armed with broad crenulate teeth. Outer plate of maxillipeds much developed, reaching middle of palp's third joint. Hand of first gnathopods not subchelate. Hand of second gnathopods not chelate. All the peraeopods carrying one or two accessory branchial lobes. Rami of third uropods lanceolate, furnished, in the female, with long plumose setæ. Telson deeply cleft.

Characters based on a single female specimen are naturally open to modification. Thus Mr. A. O. Walker has shown that in the male the second antennæ attain a much greater length than the first pair. The integument of the small species obtained by the "Thetis" is not especially hard.

It is not easy to suggest a place for the classification of this genus among the other Lysianassidæ. M. Chevreux himself points out the features which remove it from *Menigrates* and *Lepidepecreum*, to which in some respects it shows proximity. He also gives reasons for not accepting Walker's suggestion of its nearness to *Socarnes*, a suggestion in which I should myself be disposed to concur. Yet Walker puts a stumbling block in the way of this approximation by saying that the inner plate of the first maxillæ has "four or five unequal plumose setæ." Chevreux, on the contrary, figures and describes this plate with only two such setæ, as is the case in the "Thetis" species of this genus and in *Socarnes vahlii* (Kröyer).

There are not many of the Lysianassidæ which have the fourth side-plate of the peræon so strongly produced under the fifth as in *Waldeckia*. One of these is *Kerguelenia*, in many ways an exceptional genus. But the same peculiarity is found in the enigmatical *Ephippiphora kroyeri*, White. Of this species descriptions have been offered by White, Bate, G. M. Thomson, Haswell, and Miers. Unfortunately Thomson and Haswell only quoted Bate, Haswell introducing by a misprint a dorsal *spine* instead of a dorsal *sinus* in the fourth segment of the pleon. It was this sinus, common to a great many of the Amphipoda, which probably suggested to White the pre-occupied generic name *Ephippiphora*—saddle-bearing. An opportunity kindly furnished me by Mr. G. M. Thomson of examining the New Zealand form induced me to call it *Nannonyx thomsoni*[3], but I now think that it should be transferred to a separate genus, which may be named *Parawaldeckia* from its agreement with *Waldeckia* in possessing accessory lobes to the branchial vesicles. In addition to other

[3] Stebbing—Das Tierreich, xxi., 1906, p. 26.

characters to be derived from the specific description, it has a peculiarity in the male second antennæ, the last joint of the peduncle being dilated, and all the preceding joints being very short. There remain for consideration the three species which Haswell originally assigned to *Lysianassa*, under the specific names *nitens*, *affinis*, and *australiensis*, subsequently transferring them along with his *L. kröyeri* to the genus *Anonyx*. In 1882 Haswell spoke of *L. nitens* as allied to *L. kröyeri*, while in 1885 he distinguished *L. australiensis* from the latter species by the non-prehensile character of the first gnathopods, without noticing that those gnathopods are figured by Bate as non-prehensile in the type specimen of *L. kröyeri* (White), a specimen an inch long, from Tasmania. The specimens of *Waldeckia obesa* described by Chevreux and Walker attained a length of 17-18 mm., and the possibility is open that they in fact belong to White's species. Whether any or all of Haswell's apparently much smaller species should be included in the genus *Waldeckia*, and whether the species now to be described should receive one or other of those specific names, are problems insoluble with the information at present available. The differences are not really very considerable between the "Thetis" species and its much larger antarctic companion.

Second joint of third peraeopod attached to side-plate by a narrow neck	1. *Waldeckia obesa*, Chevreux.
Second joint of third peraeopod broadly expanded proximally as well as distally	2. *Waldeckia chevreuxi*, sp.nov.

WALDECKIA CHEVREUXI, *sp.nov.*

(Plate xlvii. B.)

Station 87.

Integument not especially hard. General shape agreeing with *W. obesa*, the fourth side-plate strongly produced under the fifth, which is very large, but having the lower margin decidedly indented, the sixth side-plate much narrower but very deep.

Eyes large, dark, nearly meeting at the top of the head, of which the lateral lobes are rounded. First antennæ with stout first joint, the two following very short, primary flagellum of fifteen short joints, secondary of seven, second antennæ with penultimate joint of peduncle the longest, a little bent at the base, flagellum of seventeen short joints.

The mouth-organs as in *W. obesa*, the palp of the mandibles not shorter than the trunk, as in the figure given by Chevreux contradicting his text. The first maxilla with two setæ on inner

plate, the serrate spines of the outer plate showing great breadth when favourably placed, the broad apex of the palp finely crenulate, with a minute spine at the outer corner. Outer plate of second maxillæ rather the broader. Inner plate of maxillipeds with three minute spine-teeth on the truncate apex, the very broad outer plate finely crenulate, and showing some little spine-teeth in preparation for the next moult, fourth joint of palp more than half length of third, not less than half as in *W. obesa*.

First gnathopods with third joint as long as the fifth, setose on the hind margin, sixth joint without palm, tapering, rather longer than the fifth, finger small, curved. The second gnathopods also agree with those of *W. obesa*, except that the small finger closes over a slightly concave palm, behind which the squamose hind margin is a little obtusely produced. The peraeopods are in general agreement with those of *W. obesa*, except that in the third pair the second joint is broad above as well as below and attached to a bilobed side-plate; and in the last three pairs the fourth joint appears here to be more widely expanded than in the larger species. The marsupial plates are narrow, with long setæ at the extremity. The branchial vesicles, though not well observed, appear to have accessory lobes.

The third uropods have the rami longer than the peduncle, laminar, subequal as to length and breadth, the outer with setæ only on the inner side, not showing any second joint. The telson is divided for more than three-fourths of its length, tapers to the apices, each of which ends in two small spines.

Length, 7·5 mm. from front of head to end of telson.

Locality.—Off Wata Mooli, 54 to 59 fathoms.

Genus TRYPHOSA, *Borck.*

Tryphosa, Borck., Forh. Selsk. Christiania, 1870 (1871), p. 117.
Tryphosa, Stebbing, Das Tierreich, xxi., 1906, pp. 68, 720.

To the nine species of the genus described in "Das Tierreich," the names of four other species were added in the appendix, *T. adarei*, Walker, 1903; *T. murrayi*, Walker, 1903; *T. nugax*, Holmes, 1904; and *T. cucullata*, Walker, 1904. Of these, however, Walker in 1907 cancelled *T. adarei* as being one with *T. murrayi*. But since both in text and plate *T. adarei* has page precedence, it seems clear that the name *T. murrayi* is the one that must be cancelled. More recently the list has been increased by *T. onconotus*, Stebbing,[4] and *T. coeca*, Holmes.[5] With the species now to be described the number will be in all fifteen.

[4] Stebbing—Ann. S. African Mus., vi., 1908, p. 65, pl. xxxv.
[5] Holmes—Proc. U.S. Nat. Mus., xxiv., 1908, p. 496, figs. 7, 8.

TRYPHOSA CAMELUS, *sp. nov.*

(Plate xlvii. A.)

(Station 57.)

On the fourth pleon segment this little species has a deep dorsal depression leaving the after part as a conspicuous hump, which has suggested the specific name. In many other respects it resembles *T. sarsi*, Bonnier, figured by Sars in the "Crustacea of Norway,"[6] under the subsequently discarded name *Tryphosa nana*, Kröyer. But the postero-lateral angles of the third pleon segment are more sharply out-drawn. In the second antennæ the antepenultimate joint of the peduncle is not shorter but, contrary to custom, longer than the penultimate joint. The mouth organs offer no distinctive characters. The first gnathopods, with their distally narrowed side-plates, are also undistinguishable from those of the allied form. The second gnathopods, however, differ, not having the hinder angle of the hand obtusely quadrate but subacutely produced, though not sufficiently to form a chela with the finger, which is small and weak, not as in the description by Sars, "rather strong." The size of the second joint in the last three peraeopods as compared with the remainder of the limb is greater than in the northern species. In the fifth peraeopods its length considerably exceeds that of the remaining joints combined. Also the fourth joint in these three pairs is more expanded than in the other species. The uropods are not very different from those of *T. sarsi*; the lobes of the deeply divided telson end more acutely and show three spinules instead of two on each lateral margin.

Length of female scarcely more than 3 mm.

Locality.—Off Wata Mooli, 54-59 fathoms.

Family STEGOCEPHALIDÆ.

Stegocephalidæ, Sars, Forh. Selsk. Christiania, No. 18, 1882, p. 23.
Stegocephalidæ, Stebbing, Das Tierreich, xxi., 1906, p. 88.
Stegocephalidæ, Chevreux, Exp. Antarct. Française, Amphip., 1906, p. 22.

Genus ANDANIOTES, *Stebbing.*

Andaniotes, Stebbing, Trans. Linn. Soc., (2), vii., 1897, p. 30.
Andaniotes, Stebbing, Das Tierreich, xxi., 1906, p. 96.
Andaniotes, Chevreux, Exp. Antarct. Française, Amphip., 1906, p. 22.

[6] Sars—Crust. Norway, i., 2, 1890, p. 27.

Chevreux adds a new species, *A. ingens*, attaining a length of 13 mm., from Port Charcot.

ANDANIOTES CORPULENTUS (*G. M. Thomson*).

Station 57.

Anonyx corpulentus, Thomson, Trans. N. Zealand Inst., xiv., 1882, p. 231, pl. xvii., figs. 1 a-f.
Andania abyssorum, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 739, pl. xxxvii.
Andaniotes corpulentus, Stebbing, Trans. Linn. Soc., (2), vii., 1897, p. 31, pl. viii.
Andaniotes corpulentus, Stebbing, Das Tierreich, xxi., 1906, p. 96.
Andaniotes corpulenta, Chevreux, Exp. Antarct. Française, Amphip., 1906, p. 22.

Of three small specimens taken by the "Thetis" expedition none exceded a length of 3·5 mm. In the specimen dissected the membranaceous second joint of each gnathopod was twisted. In the limb first observed I supposed the condition to be accidental, but it resisted all efforts to straighten it out.

In the "Challenger" Report the palp of the first maxillæ was described as two-jointed, but that was due to a misapprehension. It is no doubt really one-jointed.

It may be added that during the early part of the present year (1909) I recognised this species among the contents of the stomach of *Stauroteuthis hippocrepium*, Hoyle. Dr. Hoyle informs me that this Cephalopod was taken 10th March, 1908, by the "Scotia" Expedition at 24-25 fathoms depth, in Lat. 66° 40′ S., Long. 40° 35′ W. It had also been devouring several species of Isopoda and Copepoda.

Locality.—Off Wata Mooli, from 54 to 59 fathoms depth. Previous captures were from New Zealand waters. Chevreux records females, on an average 6 mm. long, from Port Charcot at depths varying from 20-40 m.

Family AMPELISCIDÆ.

Ampeliscidæ, Sars, Forh. Selsk. Christiania, No. 18, 1882, p. 29.
Ampeliscidæ, Stebbing, Das Tierreich, xxi., 1906, pp. 97, 721.

Genus AMPELISCA, *Kröyer.*

Ampelisca, Kröyer, Naturhist. Tidsskrift, iv., 1842, p. 154.
Ampelisca, Stebbing, Das Tierreich, xxi., 1906, pp. 98, 721.

To the numerous species defined and named under the last reference Professor Holmes in 1908 added *Ampelisca cristata*,

plumosa, *pacifica*, *californica*, *cœca*, *lobata*, and in the same year Mr. Arthur Pearse described *Ampelisca holmesii*.

AMPELISCA PUSILLA, *Sars*.

Station 57.

Ampelisca pusilla, Sars, Crust. Norway, i., 1891, p. 181, pl. lxiii., fig. 2.

It may seem improbable that this little species from the high north should be found in Australian waters, and I was inclined to call the single "Thetis" specimen *pœnepusilla*, but the differences scarcely justify specific separation. There appear to be ocular lenses present, which are wanting in the northern form. In the fifth peraeopods the hind margin has a smoother curve than that shown in either of the figures given by Sars. Each lobe of the telson has a single apical spinule instead of the "two small marginal spinules near the tip," spoken of by Sars.

Locality.—Off Wata Mooli, 54-59 fathoms

Family PHOXOCEPHALIDÆ.

Phoxocephalidæ, Sars, Crust. Norway, i., 1891, p. 142.
Phoxocephalidæ, Norman, Ann. Mag. Nat. Hist., (7), v., 1900, p. 333.
Phoxocephalidæ, Walker, Journ. Linn. Soc., xxviii., 1901, p. 299.
Phoxocephalidæ, Stebbing, Das Tierreich, xxi., 1906, pp. 133, 723.
Phoxocephalidæ, Walker, Nat. Antarctic Exp., iii., 1907, Amphipoda, p. 17.
Phoxocephalidæ, Stebbing, Ann. S. African Mus., vi., 1908, Crust., p. 73.
Phoxocephalidæ, Holmes, Proc. U. S. Nat. Mus., xxxv., 1908, p. 518.
Phoxocephalidæ, Chevreux, Bull. Inst. Océanogr. Monaco, No. 117, p. 8.

Seven genera are defined for this family in "Das Tierreich," and to that number Chevreux, in 1908, added the new genus *Joubinella*. Three of the genera are represented in Australian waters.

Genus PHOXOCEPHALUS, *Stebbing*.

Phoxus, Kröyer, Naturhist. Tidsskrift, iv., 1842, p. 150.
Phoxocephalus, Stebbing, Das Tierreich, xxi., 1906, p. 134.

PHOXOCEPHALUS BASSI, *Stebbing*.

Station 57.

Phoxocephalus bassi, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 811, pl. liv.
Phoxocephalus bassi, G. M. Thomson, Ann. Mag. Nat. Hist.,(7), x., 1902. p. 463.
Phoxocephalus bassi, Stebbing, Das Tierreich, 1906, p. 135.

Locality.—A single specimen was obtained by the "Thetis" at Wata Mooli, from a depth between 54 and 59 fathoms.

Family AMPHILOCHIDÆ.

Amphilochidæ, Sars, Forh. Selsk. Christiania, No. 18, 1882, p. 23.
Amphilochidæ, Norman, Ann. Mag. Nat. Hist., (7), vi., 1900, p. 33.
Amphilochidæ, Walker, Rep. Ceylon Pearl Oyster Fish., ii., 1904, p. 232.
Amphilochidæ, Stebbing, Das Tierreich, xxi., 1906, pp. 148, 723.

To the nine genera of this family distinguished in "Das Tierreich" a tenth genus is here added. Five of the older genera are also represented in Australian waters. The genus *Gallea*, established by Walker in 1904, is clearly identical with Haswell's *Cyproidea*, as restricted.

Genus AMPHILOCHUS, *Bate*.

Amphilochus, Bate, Cat. Amphip. Brit. Mus., 1862, p. 107.
Amphilochus, Norman, Ann. Mag. Nat. Hist., (7), vi., 1900, p. 33.
Amphilochus, Walker, Journ. Linn. Soc., xxviii., 1901, p.300.
Amphilochus, Stebbing, Das Tierreich, xxi, 1906, pp. 149, 723.

Five species of this genus are described in "Das Tierreich," and three others are mentioned as of uncertain classification. In the appendix one of the latter, *A. longimanus*, Chevreux, is definitely assigned to *Amphilochoides*. *Amphilochus spencebatei*, Stebbing, is added to the ascertained species, with *A. anomalus*, Chevreux, 1900, for a synonym.

AMPHILOCHUS MARIONIS, *Stebbing*.

Station 28.

Amphilochus marionis, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 743, pl. xxxviii.
Amphilochus marionis, Stebbing, Das Tierreich, xxi., 1906, pp. 151, 723.

This species is notable for having the telson much shorter than in the other species of the genus except *A. brunneus*, Della Valle. Mr. Walker in 1901 questions whether this, along with his own *A. melanops*, and Della Valle's *A. neapolitanus*, may not be synonymous with *A. marionis*.

Locality.—Off Manning River.

Genus CYPROIDEA, *Haswell.*

Cyproidea, Haswell, Ann. Mag. Nat. Hist., (5), v., 1880, p. 31.
Cyproidia, Chilton, Ann. Mag. Nat. Hist., (7), v., 1900, p. 243.
Gallea, Walker, Rep. Ceylon Pearl Oyster Fish., ii., 1904, pp. 232, 256.
Cyproidea, Stebbing, Das Tierreich, xxi., 1906, pp. 157, 723.

In 1900 Dr. Chilton added to this genus the species *C. otakensis*, using for the generic name Haswell's alternative spelling *Cyproidia*.

CYPROIDEA ORNATA, *Haswell.*

Station 28.

Cyproidia ornata, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1880, p. 320, pl. xviii., fig. 1.
Gallea tecticauda, Walker, Rep. Ceylon Pearl Oyster Fish., ii., 1904, p. 256, pl. iii., fig. 16, pl. viii., fig. 16.
Cyproidea ornata, Stebbing, Das Tierreich, xx., 1906, p. 158.

There can be little or no doubt that Mr. A. O. Walker's *Gallea tecticauda* is identical with the present species. The peculiar characters described by Haswell and found in the "Thetis" specimen, are numerous. They agree with Mr. Walker's description and figures except as regards the gnathopods, the positions of which he has evidently inverted, since his figure of the supposed first gnathopod shows a branchial vesicle, plainly proclaiming that the limb is really not the first gnathopod but the second. These limbs are in fact so closely attached one to the other that their relative position may be easily confused. The specific name *tecticauda* very appropriately referred to the curious "roof-like projection" of the sixth pleon segment over the boat-shaped telson.

Locality.—Off Manning River.

Genus GITANOGEITON, *gen. nov.*

Upper lip deeply incised. Lower lip with cavity on inner margin of principal lobes, as in *Gitana* and *Gitanopsis*, mandibular processes obtuse. Mandibles with broad straight cutting edge

divided into numerous denticles; accessory plate only on left mandible, similar to the principal cutting edge, but with the denticles microscopic; spine-row of ten or twelve spines on the surface of the mandibles; molar small, with normal denticulate crown; palp three-jointed, third joint subequal in length to the second, but much narrower than either second or first. First and second maxillæ apparently agreeing with those of *Gitana*; the maxillipeds differing from those of that genus in having the inner plates apically truncate, with two spinules on the inner surface below the apex (as in *Cyproidea ornata*), the outer plate with its inner border strongly emarginate, the outer carrying a single spine which just reaches the apex, the palp with first joint longer than any of the remaining three. First and second gnathopods in female small, subchelate, with fifth joint more strongly produced in the second than in the first pair. Peraeopods slender, except as to broadly expanded second joint in the last three pairs.

The generic name is derived from *Gitana*, a kindred genus, and γειτων, a neighbour. The most distinctive features are the upper lip and the mandibles.

GITANOGEITON SARSI, *sp.nov.*

(Plate lvii. B).

Station 28.

Head with small rostrum. Peraeon rather stout, first side-plates small, the three following large, second widening below, fourth very large, emarginate behind for the bilobed fifth. Eyes of moderate size. Upper antennæ small, first joint nearly as broad as long, second of equal length but narrower, third small but longer than broad; flagellum five (or? seven) jointed; lower antennæ broken, probably not elongate, in peduncle last joint slightly shorter than the penultimate. Whether the palp of the first maxillæ is one-jointed as in *Gitana* or two-jointed as in *Gitanopsis*, could not be decided with absolute certainty. The pellucid inner plate carries a single setule on the broad apex, the outer plate has six prominent spines on its oblique apical border, with perhaps one or two more of insignificant size. The outer plate of the second maxillæ is very narrow, with three short setæ on the apex.

The first gnathopods have the fifth joint wider than that of the second pair, but its hind margin less produced; the sixth joint widens distally to a short oblique palm, which is overlapped by the finger, setulose on its concave margin. In the second gnathopod the sixth joint widens more gradually and has the

palm less oblique. The marsupial plates are very large on this limb and on the first peræopods. The first and second peræopods have the second joint narrow as in the gnathopods, but still more elongate. In the three following pairs this joint is much expanded, with rounded corners, and the hind margin of the fourth joint is a little produced downwards. The appendages of the pleon and telson damaged. Length, about 4·5 mm.

The species is named in honour of Professor G. O. Sars, whose "Crustacea of Norway" is helpful to students of Crustacea, whatever part of the world their collections come from.

Locality.—Off Manning River. A single specimen, female.

Family LEUCOTHOIDÆ.

Leucothoidæ, Sars, Forh. Selsk. Christiania, No. 18, 1882, p. 27.
Leucothoidæ, Stebbing, Das Tierreich, xxi., 1906, p. 161.

In 1907 Mr. A. O. Walker[6] withdrew the genus *Seba* from this family, establishing for it a separate family *Sebidæ*.

Genus LEUCOTHOE, *Leach.*

Leucothoe, Leach, Edinb. Encycl., vii., 1814, p. 432.
Leucothoe, Stebbing, Das Tierreich, xxi., 1906, pp. 163, 724.
Leucothoe, Chevreux, Bull. Inst. Océanogr. Monaco, No. 117, 1908, p. 11.

In 1901 Walker added the species *L. euryonyx* and in 1904 *L. hornelli* and *L. stejoceras*, which are named but not described in "Das Tierreich." Chevreux in 1908 instituted the new species *L. rostrata*.

LEUCOTHOE COMMENSALIS, *Haswell.*

Stations 28, 44, 48.

Leucothoe commensalis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1880, p. 261, pl. x., fig. 3.
Leucothoe commensalis, Stebbing, Das Tierreich, xxi., p. 166.

It is perhaps only a matter of taste or convenience whether this should be taken as a distinct species or as a variety of *L. spinicarpa*, Abildgaard. In the "Thetis" specimen the hand of the second gnathopod contracts towards the finger hinge much more than in Sars' figure of the European form, and has a stronger

[6] Walker.—Nat. Antarctic Exp. iii., 1907, p. 87.

tuberculation of the palm in accord with Haswell's description. The postero-lateral angle of the third pleon segment is without sinus. Yet a specimen sent me some years ago under this name from the Australian Museum had this sinus, and so had the "Thetis" specimen from off Manning River.

Length of specimen from off Wollongong 17 mm.

Localities.—Off Manning River; off Coogee; and off Wollongong, 55-56 fathoms.

Genus PARALEUCOTHOE, Stebbing.

Paraleucothoe, Stebbing, Ann. Mag. Nat. Hist., (7), iv., 1899, p. 208.

Paraleucothoe, Stebbing, Das Tierreich, xxi., 1906, p. 169.

PARALEUCOTHOE NOVÆ-HOLLANDIÆ, *Haswell.*

Station 48.

Leucothoë novæ-hollandiæ, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1880, p. 329, pl. xx., fig. 2, e, f, g, g1.

Locality.—Off Wollongong, 55-56 fathoms. One specimen.

Family OCHLESIDÆ.

This family, being founded for a single specimen, offers at present no combination of characters that can properly be separated from those of the single genus. The unique feature of palpless maxillipeds separates it from all hitherto known families of the tribe Gammaridea, but the possibility is still open that the same characteristic may be discovered in some future genus otherwise on no terms of alliance with the present.

Genus OCHLESIS, *gen. nov.*

Upper and lower lips apically acute. Mandible without molar, the three-jointed palp slender, set far back. First maxillæ without palp, outer plate slender. Second maxillæ with both plates slender, outer much the longer. Maxill peds slender, entirely devoid of palp, the inner plates long and very narrow, the outer plates closely adjacent, very slightly armed. First gnathopods simple, from the rather elongate third joint onwards very slender. Uropods rather elongate, outer ramus shorter than the inner.

The name *Ochlesis*, from ὄχλησις, disturbance, refers to the unique character of the maxillipeds, which, so far as an exception can do it, overthrows the leading distinction by which the

Hyperiidea are separated from the tribe Gammaridea and the family Caprellidæ. Normally, the so-called palp of the maxillipeds consists of the last four joints of the appendage in the Amphipoda. These are reduced to two in Kröyer's genus *Lafystius* of the Gammaridea. In the tribe Caprellidea the family Cyamidæ includes species from which the palp of the maxilliped disappears in the adult stage, though it may be, and in one case certainly is, present in the young[7]. It would, in my opinion, be very inexpedient to see in these rare exceptions any ground for fusing the tribes together.

OCHLESIS INNOCENS, *sp. nov.*

(Plate xlviii.).

Stations 35, 57.

Head rostrate, rostrum bending over between the first antennæ, lateral corners triangularly produced between first and second antennæ. Peraeon and first three segments of pleon sharply carinate, fourth segment of pleon rather elongate, fifth and sixth apparently coalesced into one short segment. Body much compressed, except (in female) at middle of peraeon, the specimens in general much resembling *Lepidepecreum foraminiferum* of the Challenger Expedition. First side-plate with bulging front margin, second longer, nearly parallel-sided, third again longer, similar in shape except for a widening both ways at the top, fourth wider than the rest, the lower part of the hind margin deeply excavate, the fifth at the upper part shallowly produced forward. Postero-lateral angles of first two pleon segments rounded, the third having a little straight tooth, which is not produced from the lower margin but from a point just above it. Eyes of moderate size, near the margin of the lateral process of the head, pale in preserved specimens. First antennæ having the first joint deep, produced below into a long tooth, second joint longer but less deep than the first, similarly produced, the tooth reaching beyond the third small joint and more than half-way along the small conical flagellum, which is tipped with several filaments and setæ attached to the conical joint and to two or three microscopical following joints. Second antennæ about as long as first but otherwise much slighter, last joint of peduncle the longest, flagellum conical, smaller than that of the first antennæ, with a minute second joint tipped with setæ. Upper lip membranaceous, broad, narrowing to a little bulb, followed by an acute apex. Lower lip matching the upper, the principal

[7] P. Mayer—Fauna Flora Neapel, xvii., 1890, p. 146.

lobes having acute apices which meet or even cross; the mandibular processes narrow. Mandibles narrow, except at base, cutting-plate forming a tongue-like widening, without teeth (except that in one specimen there is a minute projection at each end of the cutting edge); there is no secondary plate or molar. All three joints of the palp rather long, second longer than the first, both smooth, third slightly longer than second, with three spinules at the apex. First maxillæ seemingly with small unarmed inner plate, outer plate long and narrow, narrowing distally, then widening a little where five spines form an oblique apical row. No vestige or vestigial mark of palp could be seen in the flattened maxillæ of the smaller specimen, but in the folded maxillæ of the larger specimen there is a very doubtful appearance of such a vestige. Second maxillæ with few spines on oblique apex of inner plate and a few on the still more oblique apex of the much longer outer plate, the distal spines of which are long. Maxillipeds membranaceous, having a few spines at the apices of the extremely narrow inner plates, the outer plates reaching a little beyond them and together forming a narrow oval, with two or three spinules distally on the inner margins.

First gnathopods, having the second joint the longest and widest, narrowing downwards, third joint longer than fourth, as commonly in the second gnathopods of the Lysianassidæ, and as in the first gnathopods of some species of the genus *Iphimedia*, fifth joint subequal in length to the slender slightly-curved sixth, which has its apex occupied by the small finger, so as to be in no degree subchelate, thus differing from the chelate but otherwise rather similar limbs of *Iphimedia minuta*, Sars, and *Odius carinatus* (Bate). Of the latter species the lips and maxillæ are also reminiscent. Second gnathopods—side-plates deep, second joint in width equalling (true length of) the side-plates, third joint much shorter than the conical fourth, fifth on its outer margin subequal in length to the narrow palm-less sixth, beside which its under margin is produced into a long sharp tooth, the tip of which may be opposed to the little unidentate finger, thus making the limb complexly subchelate. The branchial vesicle is long and narrow, the marsupial plate extensive.

The first peraeopod has the side-plates deeper than those of the second gnathopods, those of the second peraeopods are less deep but wider, with the lower part of the hind margin excavate. In these limbs the second joint is moderately wide with sides nearly straight, third joint short, conspicuously narrower than the fourth joint, fifth decidedly longer than fourth, sixth slightly longer than fifth, finger long, narrow, curved. Marsupial plates extensive.

Third, fourth and fifth peraeopods very similar to one another and to the preceding pairs, but with the second joint more

expanded, bulging below in front, behind produced downward over the third joint, the fifth and sixth joints a little more robust. The pleopods carry one or two coupling spines on the peduncle, and the rami have about seven joints. The first uropods have the peduncle much longer than the rami, which are slightly armed, a little unequal. In the second uropods the peduncle equals the longer inner ramus; in the third the peduncle is longer than the slight outer ramus, but a little shorter than the inner ramus, which is intermediate in length between the two rami of the second pair.

Telson simple, triangular, somewhat rounded above, reaching more than half-way along the peduncle of the third uropods. A process or stout spine projects from the under surface a little above the middle.

Length of one specimen, about 2·5 mm.; of the other, about 3 mm.

The specific name *innocens* is given to this exceedingly interesting little creature to guard it against any unworthy implication in connexion with its generic name. The sharpened points of several of its oral appendages, however, rather imply that it penetrates the tissues of other animals to suck their juices for its nutriment.

Localities.—Off Port Hacking and Wata Mooli.

Family ACANTHONOTOZOMATIDÆ.

Acanthonotozomatidæ, Stebbing, Das Tierreich, xxi., 1906, p. 210.

To this family must be added the genus *Pariphimedia*, Chevreux[8]. The species for which the genus was instituted, *P. integricauda*, from the Wandel, differs from the rest of the family, except *Iphimedia ambigua*, Haswell, in having the telson not emarginate, but apically entire, as the specific name declares. The new genus differs from all the older genera except *Odius* in having the palp of the first maxilla almost rudimentary and one-jointed. From *Odius* it is distinguished by having the second gnathopods slender and chelate instead of subchelate and rather robust. I incline to think that the very large twelve-toothed accessory plate attributed to the left mandible of *P. integricauda*, is in reality the principal plate preparing for the next exuviation. Its position, as figured, would otherwise be almost unaccountable.

IPHIMEDIA, *H. Rathlee.*

Iphimedia, H. Rathlee, N. Acta Acad. Leop., xx., i., 1843, p. 85.
Iphimedia, Stebbing, Das Tierreich, xxi., 1906, p. 214.
Iphimedia, A. O. Walker, Ann. Mag. Nat. Hist., (7), xviii., 1906, p. 150.
Iphimedia, Walker, Nat. Antarct. Exp., iii., 1907, pp. 4, 27.

[8] Chevreux—Bull. Soc. Zool. Fr., xxxi., 1909, p. 39.

In the recent definition the maxillipeds are considered to agree with those of *Panoploea*, Thomson, and they sometimes do, but in *I. pulchridentata* of the Challenger Expedition, the second joint of the palp is an exception, not being produced along the inner margin of the third, as it is in *Panoploea*, *Pariphimedia*, and some species of *Iphimedia*, among them being *I. discreta*, sp.nov. That species, however, in the slenderness of its mandibular palp agrees less with its own genus and the other two just mentioned than it does with *Odius*. Such interlacing of characters may at least be regarded as some indication that the family is a natural one.

In 1906, Walker added three large antarctic species to the genus, *I. echinata*, *I. longipes*, and the densely spinose *I. hodgsoni*.

IPHIMEDIA AMBIGUA, *Haswell.*

Iphimedia (?) *ambigua*, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1880, p. 327, pl. xxiv., figs. 2, 2*a*.
Iphimedia (?) *ambigua*, Haswell, Austr. Mus. Cat. v., Crust., 1882, p. 241.
Panoploea ambigua, Stebbing, Das Tierreich, xxi., 1906, p. 213 (without description).

Head with long pointed rostrum. First and seventh peraeon segments much longer than any of the intervening five. Seventh peraeon segment and first to third pleon segments dorsally produced into a pair of strong teeth. First to fourth side-plates successively deeper, the fourth emarginate above, in the figure rounded below, the fifth to the seventh each with a tooth-like postero-lateral angle, the first three pleon segments being similarly provided, the tooth strong only in the third segment, and there surmounted by a larger upturned tooth midway between the lower angle and the dorsal tooth. Eyes, in figure, rounded oval. First antennæ rather shorter than second antennæ, the first joint rather large. First gnathopod slender, filiform. Second gnathopod slender, subchelate. Third peraeopod with second joint produced above into an acute tooth, fourth peraeopod with small tooth on this joint above and below, fifth peraeopod with hind margin serrate and lower angle produced into a tooth. Third uropod with inner ramus longer than the outer, two-jointed. Telson scale-like, entire, the detail figure 2*a* representing it in dorsal view as oval, without the least trace of emargination.

By the last character this species is distinguished from all other known species of *Iphimedia*, and agrees only with *Pariphimedia integricauda*, Chevreux. Its position in the family remains ambiguous, so long as the mouth organs continue unknown, but

I have restored it to the present genus on account of the striking resemblance which it bears to the next species, that being in my opinion an undoubted *Iphimedia*.

Haswell gives the colour as red with brown dots, and the length at first as 3/30 in., but subsequently as 3/20 in., thus varying between 2·5 and 3·75 mm. The latter statement was no doubt a correction of the earlier one. In 1882 he adds Port Jackson (dredged) as the place of capture. This form was not included in the "Thetis" collection.

IPHIMEDIA DISCRETA, *sp. nov.*

(Plate xlix.)

Station 57.

This species is in many respects so closely in agreement with *Iphimedia obesa*, Rathke, that it will be convenient to confine the description almost entirely to those points in which it differs from Rathke's species.

The specimen examined was an adult female, containing about eight large eggs, its first antennæ imperfect, the second broken, and the last three joints missing from all the peraeopods. Also each of the third uropods had lost one of the rami.

The tumid peraeon has the first and last segments very long in comparison with the shortness of the intervening five, so far agreeing with *I. ambigua* rather than *I. obesa*. In common with both, this species has the rostrate head, the seventh peraeon segment and the first three segments of the much compressed pleon each with a pair of postero-dorsal teeth. Of the side-plates the first has the lower angle quadrate instead of acute, but the rest are in agreement with *I. obesa*, the last three not having a tooth-like postero-lateral angle as in *I. ambigua*. In like manner the produced tooth at the lower angle of the third pleon segment agrees with the former species in being surmounted by a larger tooth near to it, not remote as in the latter.

The eyes have very numerous small components. The first joint of the first antennæ is apically produced into one long and two small teeth. In the second antennæ the basal joints are short, the penultimate joint of the peduncle doubtful, the ultimate slender, carrying a flagellum of twenty-five joints, this part detached, but entangled with the other appendages.

The mouth-organs differ from those of *I. obesa* as figured by Professor Sars in the following points. On one mandible the accessory plate is a long narrow piece, minutely denticulate at its apex, on the other it is either wanting or in coalescence with the principal cutting edge to which it in the latter case contributes a crenulate border. The palp is very slender, the first joint much broader than the third and nearly as long, their combined length not equalling that of the second joint. The lower lip has the principal lobes acute, the inner coalesced lobes rounded, the mandibular processes large. The first maxillæ have an elongate palp overtopping the outer plate, of which the apical margin is very oblique, furred with setules below the ten mostly denticulate spines, while the well developed inner plate carries only six setæ.

The slender first gnathopods have the flexuous second joint and general character as in *I. obesa*, but are strongly distinguished by the great length of the third and fifth joints, each of which is subequal in length to the sixth, including its delicate chela-forming thumb. The second gnathopods and the peraeopods differ little from those of *I. obesa*. The third pair have the second joint more strongly serrate on the hind margin than in the species compared. The marsupial plates are very broad on the second peraeopods, but not so on the other limbs to which they belong.

The telson has the sides convex, with a shallow concave emargination of the apical border flanked on either side by a little tooth with an intervening spinule. In *I. longipes*, Walker, the telson is rather deeply notched, besides that the animal is ten times as long as the present.

Length of adult female about 3 mm. For the same sex Sars gives the length as reaching 12 mm. in *I. obesa*.

It may be observed that in the relative dimensions of the peraeon segments and in the character of the mandibular palp this species agrees with Bate's *I. eblanæ*, which in "Das Tierreich" I have transferred to *Panoploea*, Thomson, along with species in which the palp of the first maxilla does not reach the apex of the outer plate.

Locality.—Off Wata Mooli, from depth of 54-59 fathoms.

Family LILJEBORGIIDÆ.

Liljeborgiidæ, Stebbing, Ann. Mag. Nat. Hist., (7), iv., 1899, p. 211.

Liljeborgiidæ, Stebbing, Das Tierreich, xxi., 1906, p. 229.

Lilljeborgiidæ, Walker, Nat. Antarctic Exp., iii., 1909, pp. 5, 35.

Lilljeborgiidæ, Chevreux, Mém. Soc. Zool. Fr., xx., 1908, p. 475.

The character assigned to this family, that the pleon has one or more of the segments dorsally dentate, should have been qualified by the adverb *usually*, since the species *Liljeborgia aequabilis*, described in 1888, forms an exception, though in other respects clearly inseparable from the typical genus.

Genus LILJEBORGIA, *Bate.*

Liljeborgia, Bate, Cat. Amphip. Brit. Mus., 1862, p. 118.

Liljeborgia, Stebbing, Das Tierreich, xxi., 1906, pp. 230, 726, 741.

The very small species, *L. proxima*, added recently to this genus by Chevreux from the Gambier Archipelago, is distinguished from the European *L. pallida*, Bate, and *L. brevicornis*, Bruzelius, especially by the very long finger of the fifth peraeopods. In this character it agrees with *L. macronyx*, from which it is separated by the possession of large eyes and the deep apical notches in the lobes of the telson. From both of these the Australian *L. aequabilis* is distinguished not only by its greatly superior size, but also by the absence of dorsal dentation, which occurs to some extent in all the other known species of the genus, including the obscure *L. pugettendis*, Dana, which has the fourth segment of the pleon dorsally produced into a sharp tooth.

LILJEBORGIA AEQUABILIS, *Stebbing.*

Station 44.

Liljeborgia aequabilis, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 988.

Liljeborgia aequabilis, Stebbing, Das Tierreich, xxi., 1906, p. 741.

The description given in the "Challenger" Report holds good for the "Thetis" specimens. The characters also are in so close an agreement with those of *L. brevicornis*, Bruzelius, that the student may be referred to the figures and description of that species supplied by Professor G. O. Sars in his Crustacea of Norway,[8] (under the name *L. pallida*, Bate). Some distinguishing points may be briefly noticed. The first and second side-plates of the peraeon have no projecting tooth at the lower hind corner. The third pleon segment has a little emargination just above the small postero-lateral tooth. The finger of the first gnathopod has nine serrations, not strong but only discernible under high magnification. In the second gnathopods the serrations are conspicuous, seventeen in number, with the palm crenulate for a space near the hinge of the finger. The hind margin of the second joint in the last three peraeopods is very feebly serrate. The slender finger of the fifth pair is about two-fifths as long as the sixth joint. The deeply divided telson has two unequal spines, neither very long, in the rather shallow

[8] Sars—Crust. Norway, i., 23, 1894, p. 530, pl. clxxxvii.

apical notch of each lobe. The outer lobe of the notch is not longer than the inner. The telson itself is rather more than twice as long as the greatest breadth.

Length of one specimen about 9 mm.; of the other, a female, about 14 mm.

What value for specific distinction should be attributed to the presence or absence of small dorsal cusps and similar minutiæ is still an open question[9]. The question exercised a soporific influence on my mind, so that in describing *Liljeborgia* for "Das Tierreich" it was only at the last moment that I thought of mentioning *L. aequabilis*. Again, in dealing with the "Thetis" specimens I had chosen a new name for them before recalling their agreement with the species already described from South Australian waters. Thus, whatever my doubts, on two independent occasions I have been led to regard this form as a distinct species.

Locality.—Off Coogee.

Family ŒDICEROTIDÆ.

Œdicerotidæ, Stebbing, Das Tierreich, xxi., 1906, pp. 235, 726.

Genus ŒDICEROIDES, *Stebbing.*

Œdiceroides, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 843.

Œdiceroides, A. O. Walker, Ann. Mag. Nat. Hist., (7), xviii., 1906, p. 15.

Œdiceroides, Stebbing, Das Tierreich, xxi., 1906, p. 267.

Œdiceroides, A. O. Walker, Nat. Antarct. Exp., iii., 1907, pp. 4, 22.

In 1906 Mr. Walker added to the genus the large species *Œ. calmani*, and in 1907, transferred the species which in 1903 he had described as *Œdiceros newnesi* to *Œdiceroides*. Both these species differ rather strikingly from the three "Challenger" species by the much less conspicuously developed frontal process, and apparently by the more normal development of the eyes.

ŒDICEROIDES ORNATUS, *Stebbing.*

Stations 35, 38.

Acanthostepheia ornata, Stebbing, Ann. Mag. Nat. Hist., (5), xi., 1883, p. 203.

[9] See A. O. Walker—Trans. L'pool. Biol. Soc., xxiii., 1907, p. 102.

Œdiceroides ornata, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 855, pl. lxiv.

Œdiceroides ornatus, Stebbing, Das Tierreich, xxi., 1906, p. 270.

In the "Challenger" specimen from off East Moncoeur Island the flagellum of the first antennæ was missing. In a specimen measuring 7·5 mm. in length this flagellum is nine-jointed. The little process to which the ventral carina of the rostrum is produced is well seen in this specimen.

Localities.—A specimen, much damaged, was obtained off Port Hacking, another from Botany Bay.

Family TIRONIDÆ.

Tironidæ, Stebbing, Das Tierreich, xxi., 1906, pp. 273, 727.

Tironidæ, Stebbing, Ann. S. African Mus. vi., Crust., 1908, p. 79[10], pl. iv.

Genus BRUZELIA, *Boeck.*

Bruzelia, Boeck, Forh. Selsk. Christiania, 1870, (1871), p. 189.

Bruzelia, Stebbing, Das Tierreich, xxi., 1906, p. 274.

In the specimen representing the genus from Australia the body was not especially indurated. The species to be described agrees with *B. typica*, Boeck, in having the second joint of the fifth peraeopods narrowly oblong, but with *B. tuberculata*, Sars, in the acuminate rostrum. The peraeon is not dorsally smooth as in the former species and is much more sharply carinate than in the latter.

BRUZELIA AUSTRALIS, *sp.nov.*

(Plate l.).

Station 57.

From *B. tuberculata*, with which in many respects it remarkably agrees, this species is distinguished by its much smaller size, the character of its dorsal carina, and the narrowness of the second joint of the last peraeopods.

All the segments of the peraeon and first two of the pleon raised to an acute carina with the apically pointed processes successively larger, the first segment having also a point directed forward over the head. The first two segments are short, closely united, with the carina very low. The lower margins of the

[10] *Tiron thomsoni* is here given in error for *Tiron thompsoni*.

peraeon segments form a carina, which is continued on the sides of the first two pleon segments. The second pleon segment has its lower margin produced into a simple tooth; the third has the dorsal carina low and not apically pointed, but its postero-lateral angle forming a rather strongly recurved tooth.

No eyes could be discerned. The first antennæ have the first joint slightly bent, as long as the second and much stouter, the third joint about half as long as the second and more than twice as long as it is broad. The flagellum consists of seven or eight unequal joints, each with an apical filament, and all combined as long as the last two joints of the peduncle. The secondary flagellum is slender, its single joint about equal in length to the first of the principal. The second antennæ have the fourth joint slightly longer than the fifth, which is longer than the second joint of the first antennæ. The flagellum is seven-jointed.

The mouth-organs show close agreement with those which Sars has described for the genus and figured for *B. typica*. The apical border of the upper lip is more regularly rounded, without the flattened appearance given it by Sars. The stout compact mandibles seem to have a microscopic accessory cutting plate. In the maxillæ and maxillipeds there is nothing essentially distinctive.

The first and second gnathopods and first and second peraeopods are scarcely distinguishable from those of the two northern species. The first three side-plates have the lower front corner produced forward, well rounded in the first pair, narrowly so in the second, acute in the third. In the fourth, which has the hind margin excavate, the lower margin is rounded and produced acutely backward as in *B. typica*. For *B. tuberculata*, Sars figures this plate as having an obliquely emarginate lower edge. The detailed figure, lettered p^4, as according to his notation belonging to what is here called the second peraeopod, must certainly be a mistaken lettering for p^3, the first peraeopod. The third, fourth, and fifth peraeopods agree nearly with those of *B. typica*, but have the hind margin of the narrowly oblong second joint not smooth but serrate; the broad, distally produced fourth joint has an extra proximal expansion only in the fifth pair, of which the second joint is distinguished by having the lower hind corner sharply bidentate, not blunt or rounded.

The coupling spines on the peduncles of the pleopods are rather long and slender; the rami are nine- to ten-jointed.

The first uropods have the slender outer ramus about three-fourths as long as the inner, with the length of the peduncle intermediate. In the second pair the peduncle is short, the outer ramus scarcely so long as that of the first pair, but the inner very

large, broad in the first half, then tapering to a fine point, which reaches much beyond the much narrower, subequal rami of the third pair. These are unarmed, more than twice as long as their peduncle, the inner the broader. They reach considerably beyond the long, proximally broad, distally tapering telson, which ends in a fine point.

The single specimen, a female with narrow fringed marsupial plates, measured about 3 mm. In the other two species the length of adult female is given as 6 mm.

Locality.—Off Wata Mooli, 54-59 fathoms.

Family CALLIOPIIDÆ.

Calliopiidæ, Sars, Crust. Norway, i., 19, 1893, p. 431.
Calliopiidæ, Stebbing, Das Tierreich, xxi., 1906, pp. 285, 727.

To the fifteen genera of this family defined in "Das Tierreich" the appendix adds *Bouvierella*, Chevreux, 1900, and *Oradarea*, Walker, 1903, to which, in 1908, Professor Holmes further adds the genus *Gracilipes*, and in 1909 Walker provisionally placed in this family the genus *Chagosia*. I have already pointed out the likeness between Walker's *Oradarea* and *Leptamphopus*, Sars. *Djerboa furcipes*, a new genus and species in the family Pontogeneiidæ instituted by Chevreux for an Antarctic specimen, differs from *Oradarea longimana*, Walker, in having the telson not entire but deeply cleft, and in some other points, but in general shows a remarkable similarity.

Genus HARPINIOIDES, Stebbing.

Harpinioides, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 936.
Harpinioides, Stebbing, Das Tierreich, xxi., 1906, p. 298.

HARPINIOIDES DREPANOCHEIR, Stebbing.

Station 59.

Harpinioides drepanocheir, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 937, pl. lxxxii.
Harpinioides drepanocheir, Stebbing, Das Tierreich, xxi., 1906, p. 298.

A single specimen, female, of this species, measuring 6 mm. or a little over, was dredged by the "Challenger" at a depth of 127 fathoms off Kerguelen Island. It does not appear to have been met with again till obtained by the "Thetis." This specimen shows no signs of being a female. Otherwise it appears to be in

complete agreement with the "Challenger" specimen, except that it is smaller and has two setæ on the inner plate of the first maxillæ instead of only one seta. Attention may be called to the two long setæ on the inner margin of the inner plate in the second maxillæ, and to the distally widened penultimate joint of the maxillipeds. Length 3 mm.

Locality.—Off Wata Mooli, 54-59 fathoms.

Family ATYLIDÆ.

Atylidæ, Sars, Forh. Selsk. Christiania, No. 18, 1882, p. 26.
Atylidæ, Stebbing, Das Tierreich, xxi., 1906, pp. 327, 728.

Genus NOTOTROPIS, *A. Costa.*

Nototropis, Costa, Rend. Soc. Borbon., n. ser., ii., 1853, pp. 170, 173.
Nototropis, Stebbing, Das Tierreich, xxi., 1906, pp. 329, 728.

NOTOTROPIS HOMOCHIR, *Haswell.*

Stations 28, 35, 37, 38, 57.

Atylus homochir, Haswell, Proc. Linn. Soc. N.S. Wales, x., 1885, p. 101, pl. xiii., figs. 5-7.
Nototropis homochir, Stebbing, Das Tierreich, xxi., p. 333, figs. 77, 78.

In a specimen from off the Manning River the second maxillæ showed lateral setæ on the inner plate, which are not displayed in the figure of that appendage in the report on the "Challenger" Amphipoda. Also the broad second joint of the fifth peræopods has a more decided apical lobe to the hind margin, and the inner apical point to each lobe of the telson is more produced than the outer point, thus interfering with the subtruncate appearance.

Localities.—Off Manning River; off Port Hacking; Botany Bay, 50-52 fathoms; off Wata Mooli, 54-59 fathoms.

Family EUSIRIDÆ.

Eusiridæ, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 953.
Eusiridæ, Chevreux, Résult. Camp. Monaco, xvi., 1900, p. 65.
Eusiridæ, Stebbing, Das. Tierreich, xxi., 1906, pp. 338, 728.
Eusiridæ, Walker, Nat. Antarct. Exp., iii., 1907, pp. 4, 30.
Eusiridæ, Chevreux, Bull. Inst. Océanogr. Monaco, No. 121, 1908, p. 12.

Six genera of this family are defined in "Das Tierreich," and the appendix adds *Eusirogenes*, Stebbing, 1904. Chevreux in 1908, established an eighth genus under the name *Eusirella*.

Genus EUSIROIDES, *Stebbing.*

Eusiroides, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 969.

Eusiroides, Chevreux, Comp. Rend. Assoc. Franç., (27), ii., 1899, p. 479.

Eusiroides, Chevreux, Résult. Camp. Monaco, xvi., 1900, p. 65.

Eusiroides, A. O. Walker, Rep. Ceylon Pearl Oyster Fish., ii., 1904, p. 264.

Eusiroides, Stebbing, Das Tierreich, xxi., 1906, pp.345, 729.

Eusiroides, Walker, Trans. Linn. Soc., xii., 1909; pp. 325, 333.

In 1899 Chevreux gave the name *E. dellavallei* to a Mediterranean species which had been described by Della Valle in 1893 as identical with the Australian *E. caesaris*. This latter species and *E. pompeii*, also described in the "Challenger" Report I have since regarded as synonymous with *E. monoculoides*, Haswell. Della Valle's suggestion, that *Megamœra fasciculata*, G. M. Thomson, 1880, belongs to the present genus, is, I think, negatived by the gnathopods, which have the wrist comparatively elongate, instead of short and cup-shaped, at least in one sex. In 1900 Chevreux added to the genus the little species *E. sarsi* taken from small depths at the Azores and Teneriffe, and in 1904 Walker briefly described a scarcely larger species from Ceylon waters as *E. orchomenipes*. Along with this he found specimens which he considered as a variety of *E. caesaris*, writing that it "agrees with the type except as regards the pleon segments, which are not dorsally produced, and the third has the hind margin only slightly convex, with but three teeth on the lower third part; the posterior angle is a rounded right angle (fig. 22, pl.[3]). The telson is divided more than half its length. Length of female with ova 8 millims." Walker in 1909 briefly distinguishes a new species as *Eusiroides diplonyx*.

EUSIROIDES CRASSI, *Stebbing.*

Station 57.

Eusiroides crassi, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 977, pl. xc.

Eusiroides crassi, Stebbing, Das Tierreich, xxi., 1906, p. 346.

A female specimen, carrying several well developed young ones, appears to agree fairly well with the original description

of this species, but the principal mark by which it was distinguished from *E. caesaris* and *E. pompeii* depended on the unserrated hind margin of the third pleon segment. The present specimen has two teeth at the postero-lateral corner. Walker's specimens above-mentioned have three teeth a little above that corner. In the "Challenger" *E. caesaris* the denticles reached nearly the top of the lower lobe of the hind margin, but little more than half-way round it in *E. pompeii*. The telson of the present species is cleft to less than half the length, but its lateral margins are sinuous, each carrying a group of three setules level with the top of the cleft. In the mandibles the second joint of the palp though much shorter is much broader than the third. In the first maxillæ the first joint of the palp is more than half as long as the second, which has not one only but two setæ on its outer margin. The first joint of the palp in the maxillipeds reaches the extremity of the outer plates. The side-plates of the first gnathopods are strongly produced forward, and the hind lobe of the fifth joint is very broadly rounded. Length fully 13 mm.

Whether this can be retained as a species distinct from *E. monoculoides* seems doubtful.

Locality.—Off Wata Mooli, from 54-59 fathoms.

EUSIROIDES MONOCULOIDES, *Haswell.*

Station 28.

Atylus monoculoides, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1880, p. 327, pl. xviii., fig. 4, f, g.

Eusiroides monoculoides, Stebbing, Das Tierreich, xxi., 1906, p. 345.

Eusiroides monoculoides, Chevreux, Mém. Soc. Zool. Fr., xx., 1908, p. 478.

A female specimen from Station 28 has the large dark eyes completely meeting at the top of the head so as to justify, so far as general appearance goes, the specific name chosen by Haswell. The second joint of the palp in the first maxilla has two setæ on its outer margin. The third pleon segment has the lower part of the hind margin serrate as in *E. pompeii* figured in the "Challenger" Report. The telson is not cleft fully to the centre.

Locality.—Off Manning River. M. Chevreux records specimens from a lagoon in the Tuamotu Archipelago.

Family GAMMARIDÆ.

Gammaridæ (part), Leach, Edin. Encycl., vii., 1814, p. 432.
Gammaridæ, Stebbing, Das Tierreich, xxi., 1906, pp. 364, 729.
Gammaridæ, Chevreux, Mém. Soc. Zool. Fr., xx., 1908, p. 478.
Gammaridæ, Chevreux, Trav. Soc. Imp. St. Petersbourg, xxxvii., pt. 2, 1908, p. 91.

To the very numerous genera of this extensive family, defined or mentioned in "Das Tierreich," Chevreux added in 1908 the genus *Issykogammarus*, and in 1909 the genus *Metacrangonyx*.

Genus MELITA, *Leach.*

Melita, Leach, Edin. Encycl., vii., 1813, p. 403.
Melita, Stebbing, Das Tierreich, xxi., 1906, pp. 421, 732.
Melita, Chevreux, Bull. Inst. Océanogr. Monaco, No. 122, 1908, p. 6.

To the twelve species of this genus described in "Das Tierreich" must be added three species there named, but not described, *M. richardi*, Chevreux, 1900, *M. parvimana*, Holmes, 1903, *M. zeylanica*, Stebbing, 1904. *M. tenuicornis*, Walker, 1904, reinstates Dana's earlier name for it, *M. inaequistylis*, which was left among uncertain species in "Das Tierreich." *Melita grandimana* was added to the genus by Chevreux in 1908,

MELITA FRESNELII (*Audouin*).

Stations 28, 37.

Gammarus fresnelii, Audouin, Descrip. Égypte, i., 4, 1826, pl. xi., fig. 3, Savigny.
Melita australis, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1879, p. 264, pl. ix., figs. 6, a, b, 7, a, b.
Melita anisochir, Walker, Rep. Ceylon Pearl Oyster Fish., ii., 1904, p. 270, pl. iv., fig. 28.
Melita fresnelii, Stebbing, Das Tierreich, xxi., 1906, p. 423.
Melita fresnelii, Walker, Trans. Linn. Soc., xii., 4, 1909, p. 334.

The enormously developed hand of the second gnathopod in the male of this species seems to be very characteristic. It would probably be very inconvenient for the animal to have both members of the pair equally enlarged, but see note on *Maera inaequipes*, p. 599.

Localities.—Off Manning River; Botany Bay, 50-52 fathoms; a single specimen of the male.

Specimens from Station 57, off Wata Mooli, agree with Walker's figures of the female which in 1904 he names *Melita anisochir*, Kröyer.

Genus PARACERADOCUS, *Stebbing.*

Paraceradocus, Stebbing, Trans. Linn. Soc., (2), vii., 1899, p. 426.
Paraceradocus, Stebbing, Das Tierreich, xxi., 1906, 429.
Paraceradocus, Chevreux, Exp. Antarct. Française, Amphip., 1906, p. 93.

The new species to be added to this genus labours under the disadvantage of being known only in the female sex, and, of the two specimens available, only one had a first antenna in a moderately satisfactory condition, neither had more than three short basal joints of the second antennæ. From the only other species at present included in the genus, *P. miersii* (Pfeffer), which attains a length of nearly two inches, it is at once distinguished by its diminutive size as well as the serrations of the pleon and other characters.

PARACERADOCUS MICRAMPHOPUS, *sp.nov.*

(Plate li.)

Station 57.

Head without conspicuous rostrum. The pleon segments from first to sixth all dorsally denticulate, much as in *Ceradocus rubromaculatus* (Stimpson), the third segment having the denticulation continued, after an interruption, down to the strongly produced, slightly up-curved postero-lateral angle.

Eyes of moderate size, near the obtuse lateral lobes of the head. First antennæ with rather stout first joint, followed by a slender, rather longer second joint, the third not long, the flagella slender, the primary incomplete, with twelve joints, the secondary four or five-jointed.

Upper and lower lips figured from partially unsuccessful dissections. Mandibles, with secondary plate as usual stronger on one of the pair than on the other, spine-row of six or seven spines, that nearest the secondary plate more conspicuously denticulate than the rest, molar normal, third joint of palp a little longer than the second. First maxillæ with nine or ten setæ on the inner plate, eleven spines on the outer, second joint of palp elongate. Second maxillæ with fringe of setæ along most of its inner margin. Maxillipeds with three little teeth on apical border of inner plate, outer fringed with nine or ten spine teeth,

followed by three spines; second joint of palp reaching a little beyond outer plate.

First gnathopods. The side-plate distally widened, its lower border serrate, with a tooth at the front corner. The fifth and sixth joints are subequal both as to length and breadth, each more than twice as long as broad, the palm short, sloping, not sharply defined either by its angle or its palmar spine, the finger curved, a little serrate, matching the palm.

Second gnathopods longer but more slender than the first, the fifth joint a little shorter than the sixth, which is more than four times as long as broad, parallel-sided to the short very oblique palm; finger as in the first pair.

The first two pairs of peraeopods are alike, slender throughout, the branchial vesicles large, the marsupial plates narrow. The third and fifth pairs are longer than the preceding but shorter than the fourth. Like the latter they have the second joint moderately expanded, narrowing downward, with serrate hind margin, the finger nearly straight.

The first uropods have the inner branch as long as the peduncle, the outer a little shorter; in the second the shorter outer branch is subequal to the peduncle; the peduncle of the third is longer than that of the second, but much shorter than the spinose lanceolate rami.

The telson, considerably longer than broad, is divided almost to the base. The lobes end acutely and have spines along both margins. This appendage is, therefore, very different from the corresponding part in *Ceradocus rubromaculatus*. Length of specimen 4·5mm.

The specific name alludes to the smallness of both pairs of gnathopods, but this will probably not affect the still unknown male sex.

Locality.—Off Wata Mooli, depth 54-59 fathoms.

Genus CERADOCUS, *A. Costa.*

Ceradocus, A. Costa, Rend. Soc. Borbon., n. ser., ii., 1853, p. 170.
Ceradocus, Stebbing, Das Tierreich, xxi., 1906, p. 430.

CERADOCUS RUBROMACULATUS (*Stimpson*).

Stations 14, 44, 48, 49.

Gammarus rubromaculatus, Stimpson, Proc. Acad. Nat. Sci. Philad., vii., 1855, p. 394.
Ceradocus rubromaculatus, Della Valle, Fauna Flora Neapel, xx., 1893, p. 720.

Ceradocus rubromaculatus, Stebbing, Das Tierreich, xxi., 1906, p. 430.
Ceradocus rubromaculatus, Chevreux, Mém. Soc. Zool. Fr., xx., 1908, p. 479, fig. 6a-g.
Ceradocus rubromaculatus, Walker, Trans. Linn. Soc., xii., 4, 1909, p. 334.

Localities.—Off Norah Head; off Coogee; off Wollongong, 55 to 56 fathoms; off Port Kembla.

Genus MÆRA, *Leach.*

Mœra, Leach, Edin. Encycl., vii., 1813, pp. 403, 432.
Mœra, Stebbing, Das Tierreich, xxi., 1906, pp. 433, 732.

In addition to the twelve species of this genus described in "Das Tierreich," three are named in the appendix, *M. dubia*, Calman, 1898; *M. hirondellei*, Chevreux, 1900; *M. othonides*, Walker, 1904. To these should be added *M. prionochira*, v. d. Brüggen, 1907; *M. spinicauda*, Holmes, 1908; *M. rathbunæ*, Pearse, 1908.

MÆRA INÆQUIPES (*A. Costa*).

Stations 44, 48.

Amphithoe inæquipes, A. Costa, in Hope's Catal. Crost. Ital., 1851, p. 45.
Mœra scissimana, A. O. Walker, in Herdman's, Rep. Ceylon Pearl Oyster Fish., ii., 1904, p. 273, pl. v., fig. 32.
Mœra inæquipes, Stebbing, Das Tierreich, xxi., 1906, p. 435.

The specimens which I assign to this species do not justify the specific name, inasmuch as the second pair of gnathopods appear to be, as a rule, quite alike in size and sculpture. They are very large and have the deep central notch in the broad, almost transverse palm, which suggested Costa's later name *Gammarus scissimanus*, supposed to be a different species. In the specimen from off Coogee the first antennæ have a primary flagellum of twenty-nine joints, a secondary of ten; in the second antennæ the flagellum is eleven-jointed. In one of the specimens from off Wollongong the same numbers were counted, but one of the upper antennæ had an eight-jointed accessory flagellum, the other a ten-jointed. Lenth of specimen 9 mm. Walker's specimen measured 5 mm.

There is a strange resemblance in the second gnathopods of this species to those of the female *Elasmopoides chevreuxi*, from

South Africa, described in 1908. The peculiarly-shaped large eyes and the strongly dentate hind margin in the last three pairs of peraeopods combine with other characters to make the last-named species quite distinct from Costa's.

Localities.—Off Coogee and off Wollongong, 55-56 fathoms. The distribution is hereby greatly extended.

MÆRA HAMIGERA (*Haswell*).

Station 57.

Mœra hamigera, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 333, pl. xxi., fig. 1, f, g, g^1.

Mœra hamigera, Haswell, Proc. Linn. Soc. N. S. Wales, xx., 1885, p. 104.

Mœra hamigera (part?), Stebbing, Das Tierreich, xxi., 1906, p. 437.

Mœra hamigera, Walker, Trans. Linn. Soc., xii., 1909, p. 335, pl. xliii., fig. 5, gn. 2, pl. 3.

The "Thetis" specimen of this species throws doubt upon the identification with *Megamoera suensis*, var., Haswell, proposed in "Das Tierreich." The variety in question is a large species, measuring with antennæ and third uropods about 32 mm. After deduction of those appendages, this would leave for the body, from front of head to end of telson, not more than 14 mm., and the length of *M. hamigera* was given originally at half-an-inch, or 12·5 mm., but it is not stated whether this measurement includes the antennæ and uropods. Without those extensions our specimen, apparently a well developed male, measures a little less than 5 mm.

In the second gnathopods Haswell found the left member a little larger than the first pair and of similar form, but the right member very large and of characteristic shape, and figures it with a blunt finger. The "Thetis" specimen has the finger of the larger gnathopod blunt, but it is the left member instead of the right, as described by Walker for his specimens from Suez and Khor Dongola, that from the former station having a length of 7 mm., with finger of its larger gnathopod, like that of the smaller one, acute.

The side-plates of the first peraeon segment deserve notice, having the somewhat convex lower margin produced forward in a little acute point, and the hinder extremity ending in a little forward pointing tooth.

In the "Thetis" specimen the first antennæ have the second oint longer and narrower than the first, but the third scarcely a-

third as long as the second, instead of half its length as in Haswell's description. The flagellum is twenty-jointed, with a four-jointed accessory. The second antennæ have the penultimate joint of the peduncle the longest, the flagellum seven-jointed. The eyes are oval, of moderate size.

The third joint of the mandibular palp is a little shorter than the second. The inner plate of the first maxillæ has only three setæ, as stated by Walker.

In the first gnathopods the fifth joint is longer and rather broader than the sixth, in this respect differing from Haswell's figure, and also from the smaller member of the second gnathopods, in which the sixth joint is longer and not narrower than the fifth.

The last three peraeopods have the second joint more expanded above than below. The pleopods are very narrow. The first uropods have the rami nearly equal; they are only a little shorter than the peduncle. The rami of the second pair are unequal both in length and breadth. The rami of the third pair are longer than the peduncle, laminar, spinose, of equal length, differing a little in breadth.

The telson is scarcely longer than broad, the apices acute, wide apart though slightly convergent. Within and beyond each of these projects a long spine with an attendant spinule on its inner side. Adjacent to the spinules are the apical points of a round-ended cavity reaching about three-fifths of the telson's length, which at nearly this level carries a spine on each lateral margin, followed further down by two unequal setules.

A second specimen, presumably a younger male, from the same station, shows the second gnathopods not very unequal, the larger member of the pair having the fifth joint not short and cup-shaped, but much longer than broad.

Locality.—Off Wata Mooli, 54-59 fathoms.

Genus ELASMOPUS, *A. Costa.*

Elasmopus, Costa, Rend. Soc. Borbon., n.ser., ii., 1853, pp. 170, 175.

Elasmopus, Stebbing, Das Tierreich, xxi., 1906, pp. 441, 732.

Elasmopus, Chevreux, Mém. Soc. Zool. Fr., xx., 1908, p. 483.

Between 1901 and 1905 six species were added to this genus, one by Chevreux, one by Walker and A. Scott, and four by Walker, all mentioned but not described in "Das Tierreich." In 1908 Chevreux added the species *E. minimus* and *E. spinidactylus*.

ELASMOPUS SUBCARINATUS (*Haswell*).

Stations 28, 35, 37, 38, 48, 57.

Megamœra subcarinata, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1880, p. 335, pl. xxi., fig. 4.

Elasmopus subcarinatus, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 1019, *E. persetosus* on pl. 98.

Elasmopus subcarinatus, Stebbing, Das Tierreich, xxi., 1906, p. 441.

Localities.—Off Manning River; off Port Hacking; Botany Bay, 50 to 52 fathoms; off Wollongong, 55 to 56 fathoms; off Wata Mooli, 54-59 fathoms.

Family DEXAMINIDÆ.

Dexaminidæ, Stebbing, Chall. Rep., Zool., xxix., 1888, pp. 573, 900.

Dexaminidæ, Stebbing, Das Tierreich, xxi., 1906, pp. 514, 735.

Dexaminidæ, Patience, Ann. Mag. Nat. Hist., (8), i., 1908, p. 117.

No new genera have recently been added to this family, but Mr. Patience has shown that *Dexamine dolichonyx*, Nebeski, instead of being made a synonym of *Tritæta gibbosa*, Bate, should really be regarded as a synonym of *Dexamine thea*, Boeck.

Genus PARADEXAMINE, *Stebbing*.

Paradexamine, Stebbing, Ann. Mag. Nat. Hist., (7), iv., 1899, p. 210.

Paradexamine, Chevreux, Bull. Soc. Zool. Fr., xx., 1906, p. 82.

Paradexamine, Stebbing, Das Tierreich, xxi., 1906, p. 518.

The original definition derived from a single species still holds, to cover the three species now included in the genus. Among themselves these may be distinguished as follows :—

1	Second joint of fifth peraeopod much expanded	1. *P. flindersi*, Stebbing.
	Second joint of fifth peraeopod not much expanded	2.
2	Rami of third uropod short, not reaching beyond the telson	2. *P. pacifica*, Thomson.
	Rami of third uropod long, reaching beyond the telson	3. *P. fissicauda*, Chevreux.

Dexamine serraticrus, A. O. Walker in Herdman's Rep. Ceylon Pearl Fish., ii., 1904, p. 265, pl. iv., fig. 24, appears to be a near

ally of *P. flindersi*, though differing in a few points, but the mouth organs are not described, thus leaving its generic position doubtful.

PARADEXAMINE FLINDERSI (*Stebbing*).

(Plate lii.)

Stations 35M, 57.

Dexamine flindersi, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 146, pl. clxxxvii. c.

Guernea flindersi, Stebbing, Das Tierreich, xxi., 1906, p. 522.

More than twenty years ago a fragmentary specimen obtained by the "Challenger" Expedition from Flinders Passage, East Australia, was doubtfully referred to the genus *Dexamine*. Though the description and figures were necessarily incomplete, the species was thought worthy of a name, because, while making a close approach to the genus mentioned, it did not in all respects coincide with it. In 1906 it was transferred to the genus *Guernea*, but still with hesitation, as in the long interval no fresh material had come to hand. At length the "Thetis" collection has remedied this defect. But even now all the new specimens appear to be of the female sex, while, judging by the second antennæ, the original fragment is a male.

In describing the female of *Paradexamine fissicauda* from the Antarctic Ile Wandel, Monsieur Chevreux gives the following particulars :—sixth and seventh segments of the peraeon carrying a medio-dorsal carina, ending in a little tooth, first three segments of pleon with a similar carina ending in a strong tooth, flanked on either side by another tooth, fourth segment with the median carina forming a tooth larger than the preceding, the coalesced fifth and sixth segments carrying two groups of dorsal spines; head almost as long as the first three segments of the peraeon taken together, armed with a little sharp rostrum, lateral lobes not very salient; first four pairs of side-plates almost of the same height as the segments which carry them; postero-lateral angles of the second and third pleon segments produced sharply backward. All these particulars apply equally to the present species, which is only one-fifth as long as *P. fissicauda*, and differs from it in being much compressed, with the integument not specially thick or rigid. The side-plates are all more or less denticulate, and so are the postero-lateral margins of the first three pleon segments.

Eyes with very numerous components, pale in spirit.

First antennæ with first joint thicker and longer than the second, which has an apical tooth not always very obvious, and is

about two-and-a-half times longer than the third. This last differs little in appearance from the neighbouring joints of the flagellum, which are in all about ten in number, slender, with filaments on the apical joint. In the male the second joint of the peduncle is of the same shape as in the female, but longer than the first joint. The second antennæ, shorter than the first, have the peduncle as in the male, but the flagellum seemingly consisting of a single conical joint, but perhaps three-jointed, slightly shorter than the last joint of the peduncle. The antennæ of *P. fissicauda* show several differences, and have in the first pair a flagellum of eighty-five joints and one of fifty in the second.

The upper lip has no emargination of the convex distal border. The lower lip agrees with *P. pacifica* and *P. fissicauda* in having well-developed inner plates and the apices of the mandibular processes upturned. The small, undoubtedly one-jointed palp of the first maxillæ has apically three setæ. The inner plate of the second maxillæ is much shorter than the outer, both apparently with scanty armature. The inner plates of the maxillipeds are well-developed, though very short, carrying spines and perhaps spine-teeth on their truncate apices. The representation of these in the "Challenger" Report must be regarded with suspicion, as indeed is intimated in the text.

Both pairs of gnathopods have the sixth joint distally truncate with the transverse palm in the first pair quite straight, and in the narrower second scarcely convex, and only very slightly oblique, forming less than a right angle with the hind margin, not more, as in the other two species.

In all the peraeopods, except the fifth pair, the fourth joint is longer than the fifth, but in the fifth pair, which is shorter than either of the two preceding pairs, this proportion is reversed. The second joint is oblong in the third, pear-shaped in the fourth, and rotundo-quadrate in the fifth pair, its front margin in this last being nearly straight, but the hind margin very much rounded and more strongly serrate than in the other two pairs. In the specimens examined the branchial vesicles were narrow.

The pleopods are of no great strength. The other appendages may be described in Monsieur Chevreux' terms as applied to his *P. fissicauda*. First uropods elongate, branches longer than the peduncle; second pair very short, inner branch longer than the outer; third pair reaching the level of the extremity of the first pair, branches lanceolate, much longer than the peduncle, and edged with small spines. Telson much longer than the peduncle of the third uropods and cleft to the base. It is a question whether in our species the second uropods should be called *very*

short, but the figures of the two species show that the relative proportions are the same in both. The telson in the present species has each apex divided with a simple outer tooth and a slightly shorter inner bifid one, a setule separating them. Mr. Walker's *serraticrus* has the apices differently arranged. Length, from head to end of telson, about 3 mm.

Localities.—Off Port Hacking, and off Wata Mooli, 54-59 fathoms.

Family AORIDÆ.

Aoridæ, Stebbing, Ann. Mag. Nat. Hist., (7), iv., 1899, p. 211.
Aoridæ, Stebbing, Das Tierreich, xxi., 1906, pp. 585, 736.
Aoridæ, Chevreux, Mém. Soc. Zool. Fr., xx., 1908, pp. 510, 515.

To the seven genera defined in "Das Tierreich" as belonging to this family, Dr. Norman in 1905 added *Coremapus* for the species previously known as *Microdeutopus versiculatus* (Bate). On the other hand, investigation of the "Thetis" Amphipoda has led to the transfer of the genus *Dryopoides* to the Corophiidæ, but M. Chevreux, by an opportunity of examining the mouth-organs in a new species of *Xenocheira*, finds that that genus ought to be transferred from the Photidæ to the Aoridæ. The new genus *Paraoroides* is exceptional in this family by having the third uropods one-branched.

Genus LEMBOS, *Bate.*

Lembos (part), Bate, Ann. Mag. Nat. Hist., (2), xix., 1857, p. 142.
Lembos, Stebbing, Das Tierreich, xxi., 1906, pp. 594, 737.
Lembos, Walker, Trans. Linn. Soc., xxii., 1909, p. 337.

Nine species of this genus are described in "Das Tierreich," to which the appendix adds mention of *L. smithi*, Holmes, 1903, *L. podoceroides*, Walker, 1904, and *L. chelatus*, Walker, of the same date. To these must be added *L. leptocheirus*, Walker, 1909, from Wasin and Suez, a species in which the second gnathopod of the male closely resembles that of *Coremapus versiculatus*, while the first gnathopods are quite distinct.

LEMBOS PHILACANTHUS (*Stebbing*).

Stations 35, 57.

Autonoe philacantha, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 1082, pl. cx.
Lembos philacanthus, Stebbing, Das Tierreich, xxi., 1906, p. 598, fig. 102.

Some slight differences between the male specimen obtained by the "Thetis" and that taken in Bass Strait by the "Challenger" require notice. The upper lip has a more strongly rounded margin. The spine-row of the mandible has only seven spines. The second gnathopods have the sixth joint not at all widened distally as represented in my figure of the "Challenger" specimen, although that widening is not mentioned in the text. In the third uropods the rami are as nearly as possible equal in length, and the telson shows only two instead of five setiform spines at each subapical corner.

In the female the first gnathopods, though larger than the second, are not very bulky. The sixth joint, a little longer than the fifth but not broader, is narrowly oval, having the palm defined from the hind margin by a palmar spine. In the second gnathopods the sixth joint is slightly longer than the fifth, the palm a little oblique, but much shorter than the hind margin, with which it forms an angle. The specimen examined carried nine large eggs in the marsupium.

Localities.—Off Port Hacking, and off Wata Mooli, 54-59 fathoms.

Genus PARAOROIDES, *gen.nov.*

First antennæ with accessory flagellum minute, rudimentary. Border of upper lip rounded, not emarginate. Principal lobes of lower lip wide apart. Mandibular palp, third joint the longest, slender, setose only at distal end. Gnathopods as in *Lembos*, but only moderately setose. Third, fourth and fifth peraeopods with second joint broadly expanded, finger short, curved, reverted. Third uropods short, and, unlike other members of the family, with only one ramus.

The generic name refers to some points of agreement which this genus shows with *Aoroides*, A. O. Walker. That genus, however, is described as entirely devoid of an accessory flagellum, and has biramous third uropods. The latter character belongs likewise to *Lembos*, which in addition has the accessory flagellum well developed.

PARAOROIDES UNISTILUS, *sp.nov.*

(Plate liii.)

Station 28.

The first segment of the peraeon is longer than the second, with side-plates produced forward, but not acute.

The eyes are small. In the first antennæ the first joint is longer and much stouter than the second, the third in the adult male about half as long as the second, with flagellum of nine joints; in the other specimen the third joint is scarcely more than a third of the second, with flagellum of six joints. The accessory flagellum is microscopic, a tubercle tipped with several setules. The second antennæ have the gland-cone acute, the third joint stout, the fourth stouter and a little longer than the fifth, which a little exceeds the four-jointed flagellum, armed on each of these joints with a pair of curved spines.

The lower lip has a peculiar appearance by the wide display of the inner lobes between the rather narrow principal lobes. The mandibular processes are narrow, curved.

The mandibles have the cutting edge and accessory plate not much divided, the latter less strong on one mandible than on the other; spine-row of three or four spines; molar strong; curved second joint of palp about twice as long as first, with a single spine on the margin; third joint as long as first and second united.

First maxillæ with inner plate seemingly unarmed, outer plate with short spines, second joint of palp elongate. Second maxillæ with inner margin of inner plate fringed. Maxillipeds with three spine-teeth on truncate distal margin of inner plate; outer plate reaching end of second joint of palp, its inner margin fringed with eight spine-teeth, followed by some graduated spines on distal border.

First gnathopods of adult male with fifth and sixth joints robust, subequal in breadth and length, the sixth having a palmar spine at apex of hind margin, flanked by a conical tooth from the base of which the palm slopes to the broadly truncate hinge margin carrying the curved finger. Inner margin of finger with small decurrent tooth, its apex with small unguis. The (supposed) female has the side-plate much more narrowly produced forward, the fifth and sixth joints of the limb narrow, the fifth rather the longer, in the sixth joint the short piece between the palmar spine and the hinge margin almost continuous with the hind margin. The setose furniture of the gnathopods of both pairs in both (presumed) sexes is alike.

Second gnathopods of adult male with fifth joint longer than sixth, both less broad than those of the first pair, but subequal in combined length, short palm of sixth joint curving over to hinge margin. In the (supposed) female these two joints are much narrower than those of the male and are also narrower than those of their own first gnathopods.

The first and second peraeopods are alike, the fifth joint narrower than the fourth, the sixth than the fifth, the finger nearly straight. The hind margin of the sixth is armed with four

stiff setæ, of which the third is the longest. The third, fourth, and fifth peraeopods are successively longer, the increase depending chiefly on the fifth and sixth joints. In all three pairs the second joint is broadly expanded, with the hind margin setose, the last four joints are reverted, and the short finger is uncinate. In the third and fourth pairs there are moderately strong spines on the front (by reversion the hind) margin of the sixth joint. In the fifth pair the spines are minute.

The pleopods have two small coupling-hooks. The rami are unequal, not very numerously-jointed.

The first uropods have a long spine-process at apex of the peduncle. The rami are rather longer than the peduncle, subequal, with several spines on the margin. The second uropods are similar, on a smaller scale. The third uropods have a short peduncle, which is both stouter and longer than the single ramus, which terminates in several setæ, among which may be discerned a tubercular microscopic second joint.

The telson is simple, about as long as broad, surmounted by a submedian pair of setules, and having a little prominence on either side of the rounded apical border. Length of adult, from front of head to end of seventh peraeon segment, 3·75 mm.

The specific name alludes to the peculiarity for a member of the Aoridæ that the third uropods have but one ramus.

Locality.—Off Manning River. Two specimens, of which one is obviously an adult male, the other is probably a female with the marsupial plates undeveloped.

Family PHOTIDÆ.

Photidæ, Boeck, Skand. Arkt. Amphip., i., 1872, p. 74; ii., 1876, p. 546.

Photidæ, Walker, Herdman's Rep. Ceylon Pearl Oyster Fish., ii., 1904, p. 234.

Photidæ, Stebbing, Das Tierreich, xxi., 1906, pp. 603, 737.

Photidæ, Walker, Nat. Antarctic Exp., iii., 1907, pp. 5, 35.

Genus PHOTIS, *Kröyer*.

Photis, Kröyer, Naturh. Tidsskrift, iv., 1842, p. 155.

Photis, Walker, Herdman's Rep. Ceylon Pearl Oyster Fish., ii., 1904, p. 286.

Photis, Stebbing, Das Tierreich, xxi., 1906, pp. 605, 738.

In 1904, Mr. A. O. Walker added to this genus the new species *P. longimanus* from Ceylon waters, and from the same region

named a new species *P. nana*, with the not unneeded warning that this form, known only in the female, would probably have to be referred to a new genus. At the same time he suggested that *P. reinhardi*, Kröyer, might perhaps be allowed to include *P. tenuicornis*, Sars, *P. pollex*, Walker, and *P. longicaudatus* (Bate). The elongated eye-lobes of the last-named species seem to make its identification with *P. reinhardi* very doubtful, while they bring it into proximity with the Australian species about to be described.

PHOTIS DOLICHOMMATA, *sp.nov.*

(Plate lvii.)

Stations 28, 35, 37, 44, 48, 49, 57.

This abundant species appears to exceed all other known members of the genus in the prolongation of the apically rounded eye-lobes, in the size attained by the eyes, the more numerously jointed flagella of the antennæ, the setose furniture of the limbs, and to have characteristic third uropods, in that the second joint of the outer branch is unusually small and the inner branch is rather longer than usual. The second gnathopods also have a distinguishing outline to the palm.

Though the eye-lobes are always prolonged and round-ended, the dark eyes themselves are variable in size and shape, passing from round to oval in their fullest development.

In the first antennæ the second joint is much the longest, the third joint is not shorter than the stouter first and has a scarcely perceptible rudiment of an accessory flagellum. The principal flagellum may have as many as fourteen joints. The flagellum of the second antennæ appears to vary between six and thirteen joints. Both pairs carry numerous and very long setæ.

In the mouth-organs I have not observed any distinguishing features. The mandibles show eight spines in the spine-row, and in the palp the second and third joints are subequal.

The first gnathopods have the rounded lower corner of the side-plates produced forward, its lower margin as in the four following pairs fringed with long setæ. The fifth joint is subequal in length to the sixth but a little narrower; both joints are very setose. The palm is oblique, but not excavate, forming an obtuse angle with the hind margin. The curved finger has the middle part of the inner margin finely serrate, and the whole limb is in near agreement with that of *P. longicaudatus*, Bate. The second gnathopods differ from those of the latter species as figured by Sars, and still more from the Indian form figured by Walker. The decurrent lobe of the second joint represented by

Sars is entirely wanting, the palm is less oblique and defined by a moderately strong tooth with adjacent spine. Between this and the finger hinge are two small processes separating shallow excavations.

The peraeopods are of the character usual in the genus, but the side-plates of the third pair seem to differ by having the width (true length) of the deep front lobe much less than usual relatively to that of the hind lobe. The second joint of the third peraeopods is nearly circular and strongly fringed with setæ on both margins. The backward-turned finger is as usual opposed to a strong spine projecting from the preceding joint and carries behind its nail a spine so strong as to give the finger an appearance of being apically bifid. The same structure, however, is repeated in the two following pairs, but on a scale successively so dwindled that the little spines might easily pass unobserved. As in other species the fourth pair are longer than the third and the fifth than the fourth, with the breadth of the second joint in comparison with its length successively diminishing.

The pleopods have very small coupling spines. The inner ramus is rather longer than the outer, though it has one joint less, the number of joints being respectively nine and ten, as counted in one pair.

In all the uropods the peduncle is longer than the rami, especially so in the first pair. As already noticed the second joint of the outer ramus in the third uropods is very diminutive, the inner ramus is about one-third as long as the outer. The telson is small, triangular, rather broader than long, with the customary spinule and setule springing from the surface a little above and on each side of the apex. Length at full stretch about 7·5 mm. from apex of eye to apex of telson; first antennæ attaining a length of 6 mm.

The specific name, from δολιχός, long, and ὄμματα, eyes, refers to those features as described.

Localities.—Off Manning River; off Port Hacking; Botany Bay, at a depth of 50-52 fathoms; off Coogee; off Wollongong, at 55-56 fathoms; off Port Kembla, and off Wata Mooli, at 54-59 fathoms.

Genus CHEIRIPHOTIS, *A. O. Walker.*

Cheiriphotis, Walker, Herdman's Rep. Ceylon Pearl Oyster Fish., ii., 1904, pp. 234, 283.

Cheiriphotis, Stebbing, Das Tierreich, xxi., 1906, p. 737.

Walker's diagnosis of the genus (not given in "Das Tierreich") is as follows:—"Body very slender, scarcely compressed laterally; side-plates very small. Head slightly produced in front, ocular lobes more so, angular or cuspidate. Upper and lower antennæ subequal, the latter stronger; appendage well-developed. Mandibles with the palp long, second and third joints subequal, the whole as in *Gammaropsis* [Eurystheus].

"Second gnathopods of moderate size in the female, but immensely developed and peculiarly formed in the male; urus [pleon from 4th segment] small; the third uropods with the outer ramus very short, without a terminal joint, and the inner rudimentary.

"This genus is nearly allied to *Microprotopus*, from which it differs chiefly in the smallness of the side-plates."

The only trustworthy distinction between *Microprotopus*, Norman, and the present genus seems to depend on the last-named character, since the excessively minute rudiment of an inner ramus to the third uropod is not improbably present also in *Microprotopus*. The new species now to be added to *Cheiriphotis* has normal lateral compression, the second gnathopods in the male strongly, but not immensely, developed, with the fifth joint small but quite distinct. These are differences from the species *Melita megacheles*, Giles, for which the genus *Cheiriphotis* was founded, yet neither singly nor together would they seem to justify further generic division.

Second gnathopods of adult male with wrist and hand coalescent, and palm transverse.....	1. *C. megacheles* (Giles).
Second gnathopods of adult male with wrist and hand distinct, and palm deeply excavate	2. *C. australiæ*, sp.nov.

CHEIRIPHOTIS AUSTRALIÆ, *sp.nov.*

(Plate liv.).

Stations 28, 50.

Body laterally compressed. Head as long as first two segments of peraeon combined, ocular lobe obtusely pointed. Hind segments of peraeon and first three of pleon respectively, longer than those which precede and follow them. Third pleon segment with blunt postero-lateral angle forming a little crenulation more distinct in male than in female.

Eyes not perceived, probably owing to the condition of the specimens.

First antennæ with first two joints subequally long, third less than half as long as second, flagellum eleven- to thirteen-jointed, accessory flagellum three- to four-jointed, not including rudimentary apical joint.

Second antennæ slightly longer and in both sexes considerably stouter than first, but especially in the male; fifth joint of peduncle subequal in length to the fourth, each as long as, or longer, than the flagellum, which has from five to seven joints, the first always the largest, sometimes very much so in the male, where the three or four terminal joints may be abruptly narrower than the preceding.

Upper lip bilobed. Third joint of mandibular palp as long as second, distally setose. Inner plate of first maxillæ oval with setule on the almost pointed apex, and four spaced setæ on the inner margin at a little distance from the apex. Inner plate of second maxillæ rather the smaller, with lateral setæ. Inner plates of maxillipeds reaching beyond first joint of palp, outer reaching nearly to end of the long second joint; fourth joint of palp short, with small spine or unguis attached to its truncate apex.

First gnathopods much alike in the two sexes, the fifth joint rather longer than the sixth, these two joints like the side-plates being rather larger in the female than in the male. The palm of the somewhat filiform sixth joint is longer than the hind margin, and is matched in the male and overlapped in the female by the curved finger.

The second gnathopods are much more powerful in the male and differently shaped from those of the female. The fifth joint in both is short, cup-shaped with a narrowed lobe between the fourth and sixth joints. The latter in the male has a breadth fully four-fifths of the length, with the hind margin produced into a powerful tooth, against which the unguis of the strongly arched finger impinges, enclosing a great cavity with another strong tooth at its distal extremity near the hinge of the finger. The much smaller sixth joint in the female has a breadth two-thirds of the length and a sloping sinuous palm, over which the finger closes, leaving only one or two shallow cavities.

The peraeopods are in near agreement with those of *C. megacheles*. In the first and second pairs the second and fourth joints are somewhat expanded. In the three following pairs the second joint is much expanded, the breadth being equal to the length in the third pair, but exceeded by it in the other two. The third pair is the shortest, the fifth the longest. In the male specimen figured the terminal joints of all three pairs were reversed, but apparently as a rule this is more the habit of the third than of the other two pairs.

In the first uropods the peduncle is considerably, in the second a little, longer than the rami, which in each pair are subequal. In the third uropods the peduncle is as broad as it is long. The outer ramus is a little shorter and less than half the breadth, distally armed with seta-like spines, successively longer, and a stout spine with a smaller companion on each side. The inner ramus is a rudiment not half the breadth and only a quarter the length of the outer, with a little spine on its truncate end.

The telson is small, broader than long, with the distal border slightly angled between two sets, consisting each of a spinule and setule which project from the dorsal surface. Length of the animal, not including antennæ, about 3 mm.

The specific name speaks for itself.

Locality.—Off Manning River, one specimen; from Jarvis Bay, specimens of both sexes numerous, but all with the appearance of having at some time been partially dried.

Genus EURYSTHEUS, *Bate.*

Eurystheus, Bate, Ann. Mag. Nat. Hist., (2), xix., 1857, p, 143.
Gammaropsis, Walker, Ann. Mag. Nat. Hist., (7), xviii., 1906, p. 153.
Eurystheus, Stebbing, Das Tierreich, xxi., 1906, pp. 610, 637, 638.
Eurystheus, Stebbing, Ann. S. African Mus., vi., 1, Crust., 4, 1908, p. 84.
Eurystheus, Holmes, Proc. U.S. Nat. Mus., xxxv., 1908, p. 541.
Eurystheus, Walker, Trans. Linn. Soc., xii., 4, 1909, p. 339.

It may here be explained that the reason for rejecting Liljeborg's *Gammaropsis* in favour of Bate's later name *Eurystheus* depends on the circumstance that Liljeborg included in his genus a species identical with the single form for which Kröyer's *Protomedeia* was established. Thus *Gammaropsis* became at once a synonym of *Protomedeia*. From the thirteen species described in "Das Tierreich" as belonging to *Eurystheus*, one, *E. hirsutus*, has since been transferred to *Cheiriphotis*, Walker, as the female of *C. megacheles* (Giles). Four species are mentioned without description, namely, *E. dentatus*, Chevreux, 1900, *E. tenuicornis*, S. J. Holmes, 1904, *E. zeylanicus*, A. O. Walker, 1904, *E. gardineri*, Walker, 1905. To these must now be added *E. longicornis*, Walker, 1906, *E. holmesi*, Stebbing, 1908, *E. dentatus*, Holmes, 1908, and *E. monuropus*, Walker, 1909. But of these species the last but one has, it will be perceived, a preoccupied name. Like Chevreux's species it has certain segments of the pleon dorsally dentate. In other respects it differs considerably, having the first gnathopods compact instead of slender, and the third uropods short instead of comparatively long. It may be distinguished as *E. alaskensis*, from its place of origin.

EURYSTHEUS ATLANTICUS (*Stebbing*).

Stations 28, 35, 37, 44, 57.

Gammaropsis atlantica, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 1101, pl. cxiv.

Eurystheus atlanticus, Stebbing, Das Tierreich, xxi., 1906, p.611.

Eurystheus atlanticus, Stebbing, Ann. S. African Mus., vi., Crust., 4, 1908, p. 86, pl. xlb.

This small, widely distributed species is distinguished by its lageniform eyes. In the second gnathopods the hind margin of the sixth joint is flat and long, especially in the male, which has the defining tooth of the palm stronger than that of the female. In the Australian form, from Station 44, the oblique palm of the male differs to a slight extent from that which I have figured for the South African form, the part near the finger hinge being divided into three triangular teeth. In the general shape of the hand, the cavity occupied by a palmar spine, and in the rather short massive finger, the two forms are in agreement. But the Australian variety exhibits in the male, not in the female, a fringing of very long setæ on the front border of the hand, and also of the second joint. Such furniture, however, is probably of an easily detachable character. A specimen from Station 57 has second gnathopods agreeing closely with the African form, the hand very powerful, yet with a more slender finger, which has a slight projection of its inner margin near the hinge. Length about 7 mm.

Localities.—Manning River; off Port Hacking; Botany Bay, 50-52 fathoms; off Coogee, and off Wata Mooli, 54-59 fathoms.

EURYSTHEUS THOMSONI (*Stebbing*).

Stations 37, 57.

Gammaropsis thomsoni, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 1103, pl. cxv.

Eurystheus thomsoni, Stebbing, Das Tierreich, xxi., 1906, p. 613, fig. 106.

The present species was originally described from a single specimen, a female, taken by the "Challenger" Expedition off New Zealand. The male has now come to light. It was the only one of the specimens carrying an unbroken upper antenna, which showed a secondary flagellum of the character usual in the genus. Over anxiety to secure this in a preparation mounted for the microscope resulted in its mysterious disappearance. The two sexes are in close agreement, except in regard to the second gnathopods. These are much larger in the male, with the palm of the sixth joint less oblique, and defined by a decided tooth, the palm between this and the finger hinge being crenulate with a cavity in the middle. The border of the cavity on the hinge side rises to a little tooth, from which the crenulation is continued without slope. The stout finger impinges against the palmar tooth, and has a minute prominence on its inner border, touching the tip of the hind border of the palmar cavity.

The fourth and fifth peraeopods are stouter in the male than in the female. In both sexes the telson has a minute point at the centre of the apical border.

I have already called attention to the similarity of the second gnathopod in the male of *Mœra inæquipes* and the female of *Elasmopoides chevreuxi*. The present species offers another instance of the same singular resemblance, the hand and finger of the male being so like in structure to those found in the different sexes of the other two species, that one might readily accept them as all belonging to a single species, did not other considerations forbid it. They pertain in fact to three distinct genera. As already mentioned, the specimen of *Mœra inæquipes* in the present collection has a true pair of second gnathopods, both members of the pair being equally developed, as if to flout the specific name. But the male of *Eurystheus thomsoni* in the "Thetis" collection has only one member of this pair finely developed, the other being less developed than in the female, the hand forming a narrow oval with no well-marked palm. The same inequality of the second gnathopods is noted by Professor Haswell in *Mœra crassipes*, which I have ventured to transfer to the present genus. If my classification of it is right, it stands very near to the present species, being chiefly distinguished from it by the different structure of the second gnathopods.

It will no doubt be remembered that, where the second gnathopods attain to considerable bulk, it is not uncommon to find a great disparity between the two members of a pair.

Localities.—Botany Bay, 50-52 fathoms. An imperfect specimen, a female, was obtained off Wata Mooli at 54-59 fathoms depth.

Family AMPITHOIDÆ.

Ampithoidæ, Stebbing, Das Tierreich, xxi., 1906, pp. 631, 738.

Amphithoidæ, Chevreux, Mém. Soc. Zool. Fr., xx., 1908, p. 515.

Amphithoidæ, Walker, Trans. Linn. Soc., xii., 1909, pp. 326, 341.

Six genera of this family are defined in "Das Tierreich," to which should have been added *Paragrubia*, Chevreux, 1901, as mentioned in the appendix.

Genus AMPITHOE, *Leach.*

Ampithöe, Leach, Edinb. Encycl., vii., 1813, pp. 403, 432.
Ampithoe, Stebbing, Das Tierreich, xxi., 1906, pp. 631, 738.

AMPITHOE FLINDERSI, *Stebbing.*

Station 57.

Amphithoe flindersi, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 1120, pl. cxviii.
Ampithoe flindersi, Stebbing, Das Tierreich, xxi., 1906, p. 635, fig. 108.

For this small species the collection did not supply the missing information in regard to the antennæ. The second gnathopods differ from those of the specimen originally described by having an excavation of the palm at right angles to the hind margin of the sixth joint, probably indicative of male maturity.

Locality.—Off Wata Mooli, 54 to 59 fathoms.

Family COROPHIIDÆ.

Corophidæ, Dana, Amêr. Journ. Sci., (2), viii., 1849, p. 139.
Corophiidæ, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 1154.
Corophiidæ, Stebbing, Das Tierreich, xxi., 1906, pp. 662, 739.

To the eleven genera of this family defined in "Das Tierreich," the genus *Grandidierella*, Coutière, 1904, was added by name in the appendix, and in the present report the genus *Dryopoides* is transferred from the Aoridæ to this family. Recently a second species of *Grandidierella* has been described by myself, three new species of *Corophium* have been described by Chevreux, and Stimpson's species *Corophium spinicorne* and *Corophium salmonis* have had much needed light thrown upon them by J. C. Bradley.

Genus CERAPUS, *Say.*

Cerapus, Say, Journ. Acad. Nat. Sci. Phil., xi., 1817, p. 49.
Cerapus, Stebbing, Das Tierreich, xxi., 1906, pp. 665, 740.

CERAPUS ABDITUS, *Templeton.*

(Plate lvA.)

Stations 13, 37.

Cerapus abditus, Templeton, Trans. Ent. Soc., i., 1836, p. 188, pl. xx., figs. 5*a-k* ♂.

Cyrtophium calamicola, Giles, Journ. Asiat. Soc. Bengal, liv., 1885, pt. 2, p. 54, pl. i. ♂.
Cerapus calamicola, Stebbing, Chall. Rep., Zool., xxix., 1888. p. 563 ♂.
Cerapus flindersi, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 1163, pl. cxxv. ♀.
Cerapus flindersi, Chilton, Rec. Austr. Mus., ii., 1892, p. 1, pl. i. ♂ and ♀.
Cerapus calamicola, A. O. Walker, in Herdman, Rep. Ceylon Pearl Oyster Fish., ii., 1904, p. 293.
Cerapus calamicola, Stebbing, Das Tierreich, xxi., 1906, p. 740.

When the figures of the second gnathopod in the male, as given by Templeton, are compared with those drawn by Chilton from specimens collected at Port Jackson, and these again with Dr. Giles' drawing from an Indian specimen, and the illustration here offered from a Botany Bay example, the conclusion will seem justified that, unless there are other characters of distinction, all these variations belong to a single species. Mr. A. O. Walker is so convinced of the identity of *C. calamicola* and *C. flindersi* that he unites them without discussion. Yet in the former a deep rounded cavity is represented between the two distal teeth of the fifth joint, which does not appear in any of the other figures. This, however, is less strange than the two equal parallel-sided processes which Dr. Chilton found in one of his male specimens in place of the usual dentiform prolongations. In the specimen here figured the fifth joint agrees with the abnormal form just mentioned in having the fifth joint much elongated, and the sixth much curved, but it approaches *C. calamicola* in having the outer process greatly larger than the inner, which is here quite minute, opposable to a little process on the inner margin of the sixth joint near the base, a peculiarity not noticed elsewhere.

The first antennæ have the first joint much deeper than the others, the basal half forming a little sharp projection distally; the second joint is longer than the first and about three-fourths as long as the third; the eight-jointed flagellum is longer than the last joint of the peduncle, and fringed with numerous sensory filaments. The second antennæ are rather longer than the first and reach very nearly as far; the last joint of the peduncle is nearly as long as the six- or seven-jointed flagellum, of which the first joint is nearly as long as the next five, each of the latter having a small apical spine.

♂ The male specimen, taken from a tube 13 mm. long, measured from front of head to fold of pleon 5 mm., the antennæ projecting about another 6 mm.

From a tube 18 mm. long a female was taken, measuring 6·75 mm. from rostrum to end of peraeon, the first antennæ with nine-jointed flagellum, 4·25 mm. long. This specimen had a very pointed rostrum and a faint carina along the middle of head and body. To the tube were attached nine small tubes of about 3 mm. length. This tube and some others were coated with fine grains of sand, but there were some quite smooth.

Localities.—Off Cape Three Points, 41 to 50 fathoms, tubes perhaps empty; Botany Bay, from depth of 50-52 fathoms.

Genus SIPHONŒCETES, *Kröyer.*

Siphonœcetes, Kröyer, Naturhist. Tidsskrift, (2), i., 1845, pp. 481, 491.

Siphonœcetes, Stebbing, Das Tierreich, xxi., 1906, pp. 681, 740.

The known species of this genus make so near an approach one to the other, that Professor Della Valle in 1893 was contented with Kröyer's *S. typicus* as a common name for the three northern species, together with a form found in the Mediterranean. Mr. A. O. Walker, after describing *S. orientalis*, sp.nov., in 1904, from the Indian Ocean, observes:—"The narrowness of the hands of the gnathopods distinguishes this species from the others, but I confess that I am inclined to agree with Della Valle[11] (Gamm. d. Golfo di Napoli, p. 362) that the points of difference between *S. typicus*, Kröyer, the original Arctic species, *S. colletti*, Boeck, and *S. pallidus*, Sars, are not greater than can be accounted for by age, &c., so that both these species, as well as the present one, might well be united to *S. typicus*."[12] This is a comfortable doctrine, indicating that one section of the scientific world is growing weary of new species although at the same time another section is eager to name sub-species, varieties, and subvarieties. From Australian waters I am venturing to describe a form which seems to me independent, having a blunt rostrum, the ultimate joint of peduncle in the large second antennæ longer than the penultimate, and the ramus of the third uropods not longer than broad. In this respect it agrees only with *S. sabatieri*, Rouville, 1894, from which, however, it is distinguished by the first uropods, and with *S. smithianus*, Rathbun, 1905 (a new name for S. I. Smith's preoccupied *S. cuspidatus*, 1873), in which the rostrum is long, slender, acute, and the last joint of peduncle in the second antennæ decidedly shorter than the preceding joint. It may be noticed that in *S. orientalis*, Walker, the flagellum of the first antennæ is fourteen-

[11] Della Valle—Fauna Flora Neapel, xx., 1893.
[12] Walker—Rep. Ceylon Pearl Oyster Fish., ii., 1904, p. 294.

jointed, whereas in no other species have more than seven joints been assigned to that appendage.

SIPHONŒCETES AUSTRALIS, *sp.nov.*

(Plate lvi.).

Stations 13, 37.

Animal, as extracted from its *Dentalium* habitation, straight as far as the last peraeon segment, with which the curvature commences for the close ventral infolding of the terminal pleon segments. Head longer than any segment of the peraeon, produced with a rounded process rather than a rostrum between the projecting eye-lobes.

Eyes small, dark in preserved specimens, with very few components. First antennæ about as long as head and peraeon combined, first joint a little longer than third but shorter than second, which is almost as long as the six-jointed flagellum. In this the sixth joint is minute, and the first notably shorter than any of the four following joints. In the second antennæ the first two joints are short. The three following have the relative proportions, 10, 24, 29, the last two together equalling the length of the first antennæ. In the same proportion the three-jointed flagellum would be represented by the number 12; it has none of the uncinate spines found on the lateral margins in *S. orientalis*, but one apical curved spine on the second joint and two such spines on the third; a female specimen has first antennæ reaching end of peduncle of second antennæ.

In the mouth-organs no distinctive character was observed apart from those assigned to the genus, in which the one-jointed palp of the mandible is most exceptional.

The first gnathopods have the side-plate somewhat quadrate with acute front angle, the fifth joint a little shorter but broader than the sixth, which has a very oblique palm scarcely distinct from the hind margin except by a large defining spine followed by two others successively smaller; the curved finger has nine little teeth on the inner margin, the largest near to the nail.

The second gnathopods have the front corner of the side-plate rounded. The triangular fifth joint is distally as broad as the joint is long, the sixth joint is scarcely so long as that of the first pair but broader, the palm defined by a long spine, which is succeeded by four others successively smaller along the crenulate hind margin. The curved finger has about six little teeth on its concave margin.

The peraeopods are scarcely distinguishable from those of *S. colletti*, Boeck. In the first and second pairs the much expanded

second joint shows the largely developed gland, the secretion from which no doubt issues through the straight finger for cementing purposes, whether in lining the interior of the inhabited shell or in attaching sand-grains to the shell's mouth. The fourth joint is also much expanded, its widened distal end overlapping on both sides the little fifth joint. In the third and fourth peraeopods the second and fourth joints are less expanded than in the two preceding pairs, and the fourth joint does not clasp the fifth. The finger also is much smaller, and not straight, but curved back upon the hand. The fifth pair are more normal than the rest, but the not very broadly expanded second joint is fringed on both margins with plumose setæ. The remainder of the limb is linear, the sixth joint being the longest and notably curved, this and the small bidentate finger not facing forward like the rest of the limb, but backward, as shown in Kröyer's figure of *S. typicus*, but not so figured or described by either Boeck or Sars for their species.

On the widely expanded peduncles of the pleopods there are two very slender coupling spines, each armed on each side with three backward-directed denticles.

The uropods *in situ*, when the animal was withdrawn from the shell, were closely folded upon one another below and behind the telson, the rami of the first pair being at right angles to their peduncles, which are not on the upper side very greatly longer than the outer ramus. In the second pair the peduncles are much shorter, but here as in the first pair they are produced below the rami into a rounded lobe, which appears to be microscopically serrate. The minute quadrate single ramus of the third uropods carries two long setæ and one or two short ones. The peduncle is rather narrowly produced inwards, and has the remains or traces of three or four setæ. In the nearly allied *Concholestes dentalii*, Giles, the peduncle is entirely bereft of rami.

The telson is transversely oval, with a pair of minutely denticulate tracts on the distal margin. Length of dissected specimen from front of head to end of peraeon, 3 mm. A female specimen, containing two dark-brown eggs, was of similar dimensions, except, as above mentioned, that the first antennæ were relatively rather longer; on these and the second pair it retained traces of orange and white bands.

Localities.—Off Cape Three Points, 41 to 50 fathoms; and Botany Bay, from a depth of 50 to 52 fathoms.

Genus DRYOPOIDES, *Stebbing*.

Dryopoides, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 1145.
Dryopoides, Stebbing, Das Tierreich, xxi., 1906, p. 601.

It may be convenient to observe that the reference to M. Bonnier's remarks on this genus in the Bull. Sci. France-Belgique, xx., which is given in "Das Tierreich" as p. 391, is in the separate copy, p. 247.

The discovery that the male sex in this genus has the second gnathopods very decidedly larger than the first, although in the female they are smaller, makes it desirable to transfer the genus from the Aoridæ, in which I placed it in 1906, to the Corophiidæ. In that family it may stand near to Say's *Unciola*, from which it is clearly distinguished by the two free rami of the third uropods.

DRYOPOIDES WESTWOODI, *Stebbing*.

(Plate lvii.A.)

Stations 28, 35M, 57.

Dryopoides westwoodi, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 1146, pl. cxxii.
Dryopoides westwoodi, Stebbing, Das Tierreich, xxi., 1906, p. 601.

Except that the first antennæ are broken after the first joint and the second after the third, a female specimen obtained by the "Thetis" at Station 28 is in complete agreement with that figured from the "Challenger" collection. It contained a few young ones with their appendages well developed. As sometimes happens in various species, it showed the gnathopods rather larger on one side of the body than on the other. A female specimen from Station 57 has the antennæ in good condition, the upper pair with twenty-four joints to the flagellum, the lower with six. In a male from the same station there were twenty-two joints to the flagellum of the upper antennæ.

In the other male specimens the antennæ were defective. In most characters they show so exact an agreement with the females that there can be no reasonable doubt of their being partners. The sexual variation, however, is rather remarkable. It affects not only the first and second gnathopods, but also to some extent the first and second peraeopods.

The first gnathopods of the male, besides being more bulky than in the other sex, have the palm much more decidedly marked off from the hind margin and slightly sinuous. The second gnathopods of the male, instead of being smaller than the first, are much larger and have the oblong fifth joint notably longer than the sixth. The palm of the sixth is straight, oblique, nearly as long as the hind margin, overlapped by the moderately long finger. In the specimen dissected the branchial vesicles were strikingly small in comparison with the great size of the limb. The hand

and wrist in both gnathopods are furnished with many long setæ.

The first and second peraeopods resemble those of the female except in regard to the second joint, which is more expanded and has the front margin fringed with short spines as well as the setæ or slender spines with which the other sex appears to be content. The third peraeopods differ from those of the female also in regard to the second joint, this being in the male nearly as broad as long, instead of twice as long as broad. The fifth peraeopods of the male have a large group of very long setæ at the apex of the sixth joint, not perceived in the female.

In the peculiar third joint of the mandibular palp, the missing dorsal arch of the sixth pleon segment, the minute rami of the third uropods, and numerous other characters both sexes agree.

Localities.—Off Manning River; off Port Hacking; and off Wata Mooli, from 54-59 fathoms. The "Challenger" specimens were taken off Melbourne, at a depth of 33 fathoms. No doubt the supposed male had lost its second gnathopods.

Family PODOCERIDÆ.

Podoceridæ, Stebbing, Das Tierreich, xxi., 1906, p. 694.
Podoceridæ, Chevreux, Mém. Soc. Zool. Fr., xx., 1908, p. 521.

Genus PODOCERUS, *Leach.*

Podocerus, Leach, Edinb. Encycl., vii., 1814, p. 433.
Podocerus, Stebbing, Das Tierreich, xxi., 1906, pp. 700, 741.
Podocerus, Chevreux, Mém. Soc. Zool. Fr., xx., 1908, p. 521.

In 1908 Chevreux added a new species to this genus, from the Gambier Archipelago, naming it after the island at which it was taken, *P. mangarevæ*.

PODOCERUS HYSTRIX, *sp.nov.*

(Plate lviii.).

Stations 28, 35, 37, 57.

From the "Challenger" species, *Podocerus dancæ*, the present species may be distinguished by the more numerous processes on the peraeon, the different structure of the second gnathopods in the male, and the considerably smaller size. In its ornamentation it bears a striking resemblance to the species which Professor Haswell in 1888 described as *Cyrtophium* (?) *hystrix*, but subsequently transferred to *Lætmatophilus*. As Haswell had only a

single imperfect specimen, I was for a time persuaded that this imperfection had hindered him from recognising the true generic character which was obvious in the specimens of the present species procured by the "Thetis." This point of view, however, I have relinquished on reflecting that Haswell claimed for his specimen one of the distinguishing characters of *Lætmatophilus*, while he was evidently in ignorance that such a genus had been established. On transferring his species to it in 1885 he again insists on the characteristic pleon, and adds other features, saying:—"In this remarkable little species there are only five segments in the pleon and only five pairs of appendages. The antennæ are subequal and the superior pair have no appendage."

The general resemblance between Haswell's species and the present member of a nearly allied but distinct genus is further discounted by the circumstance that in the "Thetis" gathering there were included members of the Isopod family Astacillidæ, quite deceptively like these Amphipods. That organisms essentially different assume a similar garb under similar conditions of existence is not contrary to experience.

In *Podocerus hystrix* the head has a very short triangular rostrum and a large, forward-pointing, medio-dorsal process. In the centre line of the peraeon there are on the first segment two processes, the foremost the larger, pointing forward; of the three following segments each has an upward-pointing process, and with successive increase of size there is a backward-directed process to each of the next three segments. Similar processes surmount the first two segments of the pleon, these as well as those on the peraeon being flanked by corresponding rows of acute processes of moderate size. The borders of the peraeon segments are surmounted each by a tubercle and are acutely produced outwards over the side-plates, of which the first pair are sharply produced forwards, and the next three pairs more or less acutely downwards, while the remaining three have the lower border convex.

The eyes are dark, sub-globular, prominent at each side of the head, occupying the rounded ends of the eye-lobes, from the top of which a minute point may be seen projecting.

The first antennæ have the second joint much longer than the first, and readily break off between these two; the third joint is longer than the second or subequal to it; the flagellum is rather shorter than the second joint of the peduncle, with six joints, of which the first is much the longest. The accessory flagellum is one-jointed.

In the much longer second antennæ the fifth joint of the peduncle is longer than the fourth, this in turn being longer than the three-jointed flagellum.

The mouth-organs are in close agreement with those of the "Challenger" species, *Podocerus dancæ*, and the same remark applies to the small first gnathopods, which are alike in both sexes.

The second gnathopods of the female are like those of *P. dancæ*, but the second gnathopods of the male differ much from the pattern found in that species. They are distinguished from those of the female in slightly superior size, and in the circumstance that the palm, instead of pursuing a practically unbroken curve to the finger-hinge, before reaching that point forms a small tooth process followed by a slightly serrated setiferous flattened edge. In each sex the finger curves over the palm-defining projection of the short hind margin, within which one or two palmar spines are seated.

The peraeopods differ but little from those of *P. dancæ*. The second joint even in the last three pairs is little dilated. All the joints except the short third and the strong fingers have several spines and setæ to which in preserved specimens extraneous matters cling, as they do also to the body processes. As in other species of the genus all the limbs have a desperate facility of detaching themselves from the bodies to which they properly belong.

The first and second uropods have the outer ramus shorter than the inner but longer than the peduncle. The first pair are much larger than the second. The third pair consist each of a membranaceous oval piece, shorter than the telson, and tipped with a single setule.

The telson is more or less conical, with a spinule on each side where it contracts towards its blunt end. This is armed with two pairs of spines, the median pair the longer. Ventrally there is a membranaceous plate, broader than long, with a set of three setules on each side near the broadly rounded apical margin. Length of an average specimen about 7 mm.

The specific name, from the Greek ὕστριξ, porcupine, alludes to the numerous processes of the body, and will serve to emphasize the resemblance which this species bears to *Lætmatophilus hystrix* in a neighbouring genus.

Localities.—Off Manning River; off Port Hacking; Botany Bay, 50-52 fathoms; off Wata Mooli, 54-59 fathoms.

Genus ICILIUS, *Dana*.

Icilius, Dana, Amer. Journ. Sci., (2), viii., 1849, p. 140.

Icilius, Stebbing, Das Tierreich, xxi., 1906, p. 706.

So recently as 1906 I was willing to accept the decision which Professor Della Valle published in 1893, that, although four

species had been named in this genus, it really contained only one, which in that case must be called *Icilius ovalis*, Dana. In the meantime, however, examination of various specimens collected by the "Thetis" Expedition has led me to a different conclusion. The grounds on which this change of opinion rests will now be explained. Unfortunately it cannot even now lay claim to finality, because the earlier descriptions suffer from obscurity or incompleteness, and among the newly acquired specimens of these fragile animals not a single one was perfect, not only every individual wanting some of its parts, but some of the parts being absent from the whole collection.

It should be borne in mind that Professor Haswell, who in 1880, figured and described two Australian species, first *I. australis* and then *I. punctatus*, in 1882 united them, remarking that "an examination of a series of specimens has made it appear probable that *I. australis* and *I. punctatus* are to be regarded as varieties of one species." He had previously stated that *I. punctatus* was "distinguished from *I. australis* chiefly by the greater breadth of the rami of the three posterior pairs of pleopoda" [uropods]. It remains doubtful whether in combining his two species he was influenced by any other character than this.

When instituting the species *I. dancæ* in 1888 for a female specimen taken at a depth of 33 fathoms off Melbourne, I pointed out the feature distinguishing it from Dana's typical *I. ovalis* taken in 31 fathoms north of Borneo. These gain a new importance from the steadfastness of character in the "Thetis" specimens which agree with the account of *I. dancæ*. I do not wish to deny that future discoveries may once more unite *I. ovalis* and *I. dancæ*, but I think it extremely improbable that such a union can be effected between *I. ovalis* and *I. australis*. In the existing state of knowledge the following synoptic table may be offered:—

1	First and second pleon segments with hind margin acutely produced at the middle—2.	
	First and second pleon segments with hind margin not acutely produced at the middle—3.	
2	Last segment of peraeon without, third segment of pleon with, acute process at middle of hind margin.....	1. *Icilius ovalis*, Dana.
	Last segment of peraeon with, third segment of pleon without, acute process at middle of hind margin.....	2. *Icilius dancæ*, Stebbing.
3	Postero-lateral margins of first and second pleon segments forming two strong teeth.....	3. *Icilius australis*, Haswell.
	Postero-lateral margins of first and second pleon segments forming no strong teeth.....	4. *Icilius punctatus*, Haswell

Dana's statements that the feet are all vergiform and that the first and second peraeopods, though a little stouter than the gnathopods, are still slender, are irreconcilable with the undoubtedly subchelate character of those peraeopods in Haswell's *I. punctatus*.

As will be presently explained, in "Das Tierreich" I have misdescribed the third uropod. The generic account should state that the outer ramus of this appendage is of variable length, sometimes longer than the peduncle.

ICILIUS DANÆ, *Stebbing*.

Icilius danæ, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 1203, pl. cxxxiii.

(Plate lix.A.)

Stations 28, 57.

Almost all the specimens of this and the congeneric forms proved to be females as attested by their possession in common of very ample marsupial plates. In the present form eggs few and large were occasionally present. As already noticed, this species stands alone in having the hind margin of the seventh peraeon segment acutely produced at the middle. It differs from the other two Australian forms in a similar production of the first and second pleon segments, which are also laterally carinate, but agrees with *I. punctatus* in having the postero-lateral angles of those segments only minutely out-drawn. In all three forms the seventh is the longest of the peraeon segments, and the first is the longest of the pleon segments, with the exception of the fourth, which, however, when the tail is flattened out, is to a considerable extent concealed.

The mouth-organs and gnathopods apparently are in very close agreement in all the Australian forms. The peraeopods by their comparative slenderness contrast in this species with those of the other two forms, but so does the general build of the species itself, and some may argue that though sexually reproductive, these specimens are morphologically immature. The combination of characters does not make this very probable. In the fifth peraeopod the second joint evenly sinuous, convex above, concave below, ending in an acute tooth, descending below the adjoining tooth of the lower margin; the fourth joint is quite slender, compared with that joint in the other two forms.

The pleopods are very distinctive. In those of the first pair the peduncle is more than twice as long as broad, with parallel margins.

The uropods are slender, the peduncle in the first pair longer than the rami, of which the outer is shorter than the inner; the peduncle of the second pair rather shorter than the inner ramus of the first, but much shorter than the inner ramus of the second at its greatest extension, the outer ramus of the second pair a little shorter than that of the first. As indicated, there is some amount of variability in these lengths, probably due to loss and recuperation, which would naturally most affect the longest ramus, the inner of the second pair. The third pair have in all three forms a short broad peduncle, strongly produced on the inner side. In this species the outer ramus extends beyond the produced part of the peduncle, and may even considerably exceed the whole peduncle in length. This is so different from what is seen in the other two Australian forms that I distrusted my figure and description in the "Challenger" Report, supposing that the rather elongate ramus there given must be the inner. Accordingly in "Das Tierreich" I stated that the outer ramus was "not shown in fig. 125, p.707," whereas it is certainly the inner ramus that is missing, not only from the figure, but from all the specimens which have come under my hands. Dana says that in *I. ovalis* these rami are "quite unequal." His figure shows two rather long slender branches, of which the inner is considerably the shorter. Dana describes the telson as "small ovate," and so it is here, with some minute spinules in notches leading to an acute tip. Length, from front of head to telson, not including uropods, 7 or 8 mm.

Locality.—Off Manning River, and off Wata Mooli, from 54 to 59 fathoms.

ICILIUS PUNCTATUS, *Haswell*.

(Plate lix.B.)

Station 44.

Icilius punctatus, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 343, pl. xxiii., fig. 1f, h, i, x.

In this form there are no medio-dorsal projections of the body segments and the postero-lateral angles of the first two pleon segments are only minutely produced. The fifth peraeopod has the second joint not longer than broad as in the preceding species, but with a proximal breadth equal to the length, the hind margin making a broadly rounded bulge at the upper part and then descending rather obliquely but straight to the apical tooth, which is scarcely so much produced as the adjacent tooth of the lower margin. The fourth joint is broad and well furnished with plumose setæ and spines.

The pleopods have broad peduncles, reaching on the inner side considerably beyond the bases of the rami. Their lateral mar

gins converge slightly upwards, and the inner margin at the top projects inward a small well-marked blunt process.

The uropods agree so closely with Professor Haswell's figure of these appendages in his *I. punctatus* that the identification is tolerably secure. The rami of the first two pairs very nearly agree, though the outer ramus of the first is rather longer than that of the second pair. All are strongly fringed with spines and have besides a microscopic spinular fringe. The third uropods have a short peduncle, produced on the inner side, probably as a support to the large foliaceous inner ramus, which is as long as that of the first pair and broader, fringed with spines and carrying some on its surface rather near the base. In contrast to this the little oval outer ramus, with a single small spine on the outer margin near the apex, does not even reach the end of the peduncular process. The telson appears to be more rounded than in the other forms. It has a pair of spinules on the convex distal margin. This species, without being longer than the preceding, is broader and more robust.

Locality.—Off Coogee.

ICILIUS AUSTRALIS, *Haswell.*

(Plate lix. c.)

Station 57.

Icilius australis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 274, pl. xii., fig. 2, a, b, c.

This form is the bulkiest of the three, and so far conforms to the ideal suggested by Professor Haswell's original figure of *I. australis*. The head is of great width with the eyes very prominent. The back is devoid of median processes, but the first two pleon segments are postero-laterally double-toothed. Also they have numerous spinules on or near the hind margins of these segments, which were not to be detected in the other forms. In the fifth peraeopods the large second joint's hind margin forms quite a narrow bulge at the top, and then descends with sinuous sweep to the two subequal teeth below. The fourth joint is very broad and strongly spinose.

The pleopods have the peduncles more dilated below than those of *I. punctatus*, and in the third pair the outer margin shows a fringe of spines much stronger than those present in the species ust named.

The first and second uropods were not in good condition, the inner ramus was wanting to the third, but here the outer ramus, though shorter than the peduncle, extended beyond it and

exhibited five spines along the outer margin and apex. The telson has a pair of small spines at the obtusely triangular apex. Length, not more than twice the breadth.

Locality.— Off Wata Mooli, from 54 to 59 fathoms.

Genus DODECAS, *Stebbing.*

Dodecas, Stebbing, Ann. Mag. Nat. Hist., (5), xi., 1883, p. 207.
Dodecas, Stebbing, Chall. Rep., Zool., xxix., 1888, pp. 547, 1232.
Dodecas, P. Mayer, Flora Fauna Neapel, xvii., 1890, pp. 4, 6, 8, 15, 105, &c.
Dodecas, P. Mayer, Siboga Expeditie, xxxiv., 1903, p. 29.

Dr. Mayer, when adding a second species to the genus in 1903, remarks that the diagnosis of the genus remains unaltered, and gives its characters as mandibular palp three-jointed, flagellum of second antennæ at most five-jointed, first peraeopod with normal number of joints, second wanting, third with four free joints, branchial vesicles on peraeon segments 2-4, pleon in the male with three, in the female with two pairs of appendages.

A slight change is now required, since the species about to be described attains a greater number than five in the joints of the second antennæ. It may be distinguished from its companions as follows:—

1 { Body smooth..... 1. *Dodecas elongata*, Stebbing.
  { Body with spine-like processes—2.

2 { Body of male six-spined; flagellum of first antennæ seven-jointed..... 2. *Dodecas hexacentrum*, Mayer.
  { Body of male ten-spined; flagellum of first antennæ more than seven-jointed 3. *Dodecas decacentrum*, sp nov.

Another mark by which the new species is distinguished from *D. hexacentrum* is found in the branchial vesicles, which do not decrease in size successively backwards, the middle one being notably the largest.

DODECAS DECACENTRUM, *sp.nov.*

(Plate lx.).

Stations 35, 37, 57.

This species so much resembles *Dodecas hexacentrum*, the Australian species described by Dr. Paul Mayer, that at the first glance I took it for granted that its name was already established. On closer examination this view proved untenable. Fortunately the specimens which Dr. Mayer received from Watson Bay, Port

Jackson, were very numerous. So also were those procured by the "Thetis" Expedition at the neighbouring stations of Port Hacking and Botany Bay. At all three localities there were many females, with brood pouches, but no larvæ in them. That the two forms cannot be united will, I think, be made clear by the following comparison of their characters.

In the earlier species the body has a pair of dorsal spines at the end of the first peraeon segment, a similar pair on the middle of the second segment, which also carries a spine over the base of each of the second gnathopods, thus furnishing to the adult male the six spine-processes to which the specific name refers. The first pair is wanting or feebly developed in the female and young male. The new species has a dorsal pair at the end of the first segment, one in the middle, and one at the end of the second, and two other pairs, arming respectively the third and fourth segments at the middle. It is to these ten processes in a continuous line of pairs that the name *decacentrum* alludes, without taking into account the lateral processes which are difficult to see even over the second gnathopods, and still more in position far below the first and fifth dorsal pairs. Here also the female has a smaller apparatus, the first and fourth segments having lost their armature. On the second segment moreover the first pair is moved forward in correspondence with the altered position of the second gnathopods in the female sex.

Mayer describes the first antennæ in his species as very long, especially in the male, and with curved basal joints; the flagellum in both sexes seven-jointed, the first joint in the male being relatively very long; flagellum of the second antennæ in the male five-jointed, in the female four-jointed. The new species agrees in so far that the first antennæ are very long, and in the male the last joint of the peduncle is commonly longer than the penultimate, whereas in the female those two joints are subequal, but in both sexes the number of joints in the flagellum, though very variable, may ascend far beyond seven. In one female specimen it contained nineteen joints, in a male specimen seventeen, the joints slender and elongate, the first always the longest. Sometimes the basal joints of the peduncle show a slight curvature, but often they are quite straight. The slender flagellum of the second antennæ is usually seven-jointed, but may be eight-jointed.

For the fringing spines of the third joint in the mandibular palp Dr. Mayer gives the numbers 1 + 11 + 1, In two examined specimens of the new species the number is 1 + 14 + 1 and 1 + 15 + 1. Such minutiæ, however, are very likely to be subject to much variation. Dr. Mayer notes that the third joint of the maxilliped palp has distally a process. Such a process is present also in our species, but it is very small.

In Dr. Mayer's species the three pairs of branchial vesicles from front to rear decrease considerably in size. This is not the case with the new species. Though the first pair is larger than the third, the second is very conspicuously larger than the first, in both sexes.

The fourth and fifth peraeopods are only rarely found in position. For the sixth joint in the Port Jackson specimens Dr. Mayer describes the clasping spines as consisting of one pair and two that are impaired. In the new species near the proximal end there are in both sexes two successive pairs of spines and a single spine near the hinge of the finger.

This assemblage of differences should suffice to discriminate the two species. That they should be found in unmixed numbers in apparently close proximity, is of no controversial importance apart from more precise information as to the exact conditions of capture in each case, or, in modern phrase, as to the œcology of the two species.

The new species has the eyes rounded, very prominent, dark red in spirit. The mouth-organs are in near agreement with those of *Dodecas elongata*. In the second gnathopods the fifth joint is as usual short in the female, but long and slender in the male, distinct from the sixth but without separate mobility. The palm of the sixth joint has two emarginations, of which the distal one is the longer, but veiled by a transparent membrane.

The pleon is in near agreement with that of *Dodecas elongata*, having in the male at the base a ventral median plate carrying a minute pair of oval pleopods, each ending in a seta.[13] The platt alone is present in the female. The uropods are in agreement with those of *D. elongata*, except that the first pair does not so greatly exceed the length of the second.

Three male specimens measured, respectively, 18·5, 18, 17·5mm. Of the first, the first antenna, with flagellum broken after the 8th joint measured 14 mm., of the second the antenna was only 10·5 mm. long, of the third the antenna with flagellum complete was 14 mm. A female specimen, 17 mm. long, had a first antenna 9·5 mm. in length, of which the 19-jointed flagellum measured 4·5 mm.

Localities.—Port Hacking; Botany Bay, from depth of 50-52 fathoms off Wata Mooli, from 54-59 fathoms.

Genus ORTHOPROTELLA, *Mayer.*

Orthoprotella, Mayer, Siboga Expeditie, xxxiv., 1903, p. 35.

Distinguished from *Protella* (in its latest restriction) chiefly by the pleon of the male, which carries one pair of two-jointed rudi-

[13] See Mayer—*Loc. cit.*, 1890, p. 126, pl. v., fig. 7.

mentary pleopods. The coalescence of the sixth and seventh segments of the peraeon is as advanced as in *Protella*.

ORTHOPROTELLA AUSTRALIS (*Haswell*).

Station 28.

Protella australis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1880, p. 276, pl. xii., fig. 4, a, b.

Protella australis, Haswell, Proc. Linn. Soc. N. S. Wales, ix., 1885, p. 997, pl. xlix., figs. 2-4.

Orthoprotella australis, Mayer, Siboga-Expeditie, xxxiv., 1903, p. 35, pl. i., figs. 23-26, pl. vi., figs. 43-49, pl. ix., figs. 14, 37, 57, 58.

Under the last reference will be found a clue to earlier discussions concerning this species and all the available information about it. In the "Thetis" specimen, a male, the flagella of the upper antennæ are broken, and the last three pairs of peraeopods are missing. A second specimen, only 3·5 mm. long, dorsally smooth, has six joints on the somewhat imperfect flagellum of an upper antenna, three and two respectively on the flagella of the lower pair; one hind peraeopod (fourth or fifth, being now detached) has two spines on proximal prominence of sixth joint, with a succession of six spinules along concave margin.

Locality.—Off Manning River.

APPENDIX.

CATALOGUE OF AUSTRALIAN AND TASMANIAN AMPHIPODA.

GAMMARIDEA.

Family LYSIANASSIDÆ.

AMARYLLIS MACROPHTHALMA, *Haswell.*

See ante, p. 569.

AMARYLLIS BATHYCEPHALA, *Stebbing.*

Amaryllis bathycephalus, Stebbing, Chall. Rep., Zool., xxix., 1888, p 699, pl. xxvii.; *Amaryllis bathycephala*, Stebbing, Das Tierreich, xxi., 1906, p. 24.

ONESIMOIDES CARINATUS, *Stebbing.*

Onesimoides carinatus, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 648, pl. xiv.; *Id.*, Das Tierreich, xxi., p. 32.

SOCARNOIDES STEBBINGI, *G. M. Thomson.*

Lysianax stebbingi, G. M. Thomson, Proc. Roy. Soc. Tas., 1893, 1892, p. 19. pl. iii., fig. 9-18; pl. v, fig. 9, 10. *Socarnoides stebbingi*, Stebbing, Das Tierreich, xxi., 1906, p. 47.

WALDECKIA CHEVREUXI, *sp.nov.*

See ante, p. 572.

SOCARNES KROYERI, *White.*

Ephippiphora kroyeri, White, Proc. Zool. Soc., Lond., xv., 1847, p. 124. See ante, discussion under *Waldeckia*, p. 570.

HIPPOMEDON GEELONGI, *Stebbing.*

Hippomedon geelongi, Stebbing, Chall. Rep., Zool., xxix., 1888 p. 635, pl. xi.; *Id.*, Das Tierreich, xxi., 1906, p. 60.

GLYCERINA TENUICORNIS, *Haswell.*

Glycera tenuicornis. Haswell, Proc. Linn. Soc., N. S. Wales, iv., 1879, p. 256. pl. viii., fig. 6; *Glycerina tenuicornis*, Haswell, Austr. Mus. Cat., v., 1882, Crust., p. 234, pl. iv., fig. 3. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 61.

TRYPHOSA CAMELUS, *sp.nov.*

See ante, p. 574.

TMETONYX MIERSI, *Stebbing.*

Hippomedon miersi, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 631, pl. x.; *Tmetonyx*, *Id.*, Das Tierreich, xxi., 1906, p. 75.

LYSIANASSA NITENS, *Haswell.*

Lysianassa nitens, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 255, pl. viii., fig. 5. *Anonyx nitens*, Haswell, Proc. Linn. Soc. N. S. Wales, x., 1885, p. 98, pl. xii., figs. 1, 2. Genus still uncertain.

LYSIANASSA AFFINIS, *Haswell.*

Lysianassa affinis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 256; *Ibid.*, x., 1885, p. 99, pl. xii., figs. 5, 6.

LYSIANASSA AUSTRALIENSIS, *Haswell.*

Lysianassa australiensis, Haswell, Proc. Linn. Soc. N. S. Wales, iv, 1879, p. 323, pl. xviii., fig. 3, f, g; *Ibid.*, x., 1885, p. 99, pl. xii., figs. 3, 4. This, like the two preceding species, is generically doubtful.

Family STEGOCEPHALIDÆ.

ANDANIOTES CORPULENTUS, *G. M. Thomson.*

See ante, p. 575.

STEGOCEPHALUS LATUS, *Haswell.*

Stegocephalus latus, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 252, pl. viii., fig. 2, a, b; *Ibid.*, x., 1885, p. 97, pl. xi., figs. 7-12. Genus doubtful (? *Steyocephaloides*, Sars.).

Family AMPELISCIDÆ.

AMPELISCA AUSTRALIS, *Haswell.*

Ampelisca australis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 257, pl. ix., fig. 1, a, b, c, d. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 104.

AMPELISCA PUSILLA, *Sars.*

See ante, p. 576.

AMPELISCA ACINACES, *Stebbing.*

Ampelisca acinaces, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 1036, pls. ci., cii. *Id.*, G. M. Thomson, Ann. Mag. Nat. Hist., (7), x., 1902, p. 464. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 108, figs. 25, 26.

Family HAUSTORIIDÆ.

PLATYISCHNOPUS MIRABILIS, *Stebbing.*

Platyischnopus mirabilis, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 830, pl. lviii; *Id.*, Das Tierreich, xxi., 1906, p. 123.

A. O. Walker (Rep. Ceylon Pearl Fish., ii., 1904, p. 246) forms a new family Argissidæ for *Platyischnopus*, Stebbing, and *Argissa*, Boeck.

Family PHOXOCEPHALIDÆ.

PHOXOCEPHALUS BASSI, *Stebbing.*

Phoxocephalus bassi, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 811, pl. liv.; *Id.*, Das Tierreich, xxi., 1906, p. 135.

PONTHARPINIA PINGUIS, *Haswell.*

Urothoë pinguis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 325, pl. xix., fig. 2, a, b, c, e, f, p, x. *Pontharpinia pinguis*, Stebbing, Das Tierreich, xxi., 1906, p. 146.

PONTHARPINIA ROSTRATA, *Dana.*

Urothoë rostratus, Dana, Wilkes U.S. Expl. Exp., xiii., 1853, p. 921. *Phoxus batei*, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 259, pl. ix., fig. 3, a, b. *Phoxocephalus batei* and *Phoxocephalus rostratus*, Stebbing, Chall. Rep., Zool., xxix, 1888, p. 1717; *Pontharpinia rostrata*, Stebbing, Das Tierreich, xxi., 1906, p. 146.

PARHARPINIA VILLOSA, *Haswell.*

Phoxus villosus, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 258, pl. ix., fig. 2, a, b. *Parharpinia villosa*, Stebbing, Das Tierreich, xxi., 1906, p. 147.

Family AMPHILOCHIDÆ.

AMPHILOCHUS MARIONIS, *Stebbing.*

See ante, p. 577.

CYPROIDEA ORNATA, *Haswell.*

See ante, p. 578.

PARACYPROIDEA LINEATA, *Haswell.*

Cyproidia lineata, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1879, p. 321, pl. xviii., fig. 2, f, g. *Paracyproidea lineata*, Stebbing, Das Tierreich, xxi., 1906, p. 160.

GITANOGEITON SARSI. *gen. et sp.nov.*

See ante, p. 579.

Family LEUCOTHOIDÆ.

LEUCOTHOE COMMENSALIS, *Haswell.*

See ante, p. 580.

LEUCOTHOE BREVIDIGITATA, *Miers.*

Leucothoe brevidigitata, Miers, Rep. Voy. Alert, 1884, p. 313, pl. xxxiv., fig. A. *Leucothoe flindersi*, Stebbing, Chall. Rep. Zool., xxix., 1888, p. 779, pl. xlviii.; *Leucothoe brevidigitata*, Stebbing, Das Tierreich, xxi., 1906, p. 167.

LEUCOTHOE DIEMENENSIS, *Haswell.*

Leucothoe diemenensis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 262, pl. ix, fig. 5.

LEUCOTHOE GRACILIS, *Haswell.*

Leucothoe gracilis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 263, pl. x. fig. 2.

It is unlikely that these names represent four distinct species. Dr. Della Valle (1893) may be right in practically uniting them all with *Leucothoe spinicarpa*, Abildgaard, which A. O. Walker (1909) declares to be cosmopolitan.

PARALEUCOTHOE NOVÆHOLLANDIÆ, *Haswell.*

See ante, p. 581.

Family STENOTHOIDÆ.

STENOTHOE MIERSII, *Haswell.*

Montagua miersii, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 323, pl. xxiv., fig. 4, f. *Montagua longicornis*, Haswell, *ibid.*, p. 323, pl. xxiv., fig. 5, f, g, x. *Montaguana miersii*, Chilton, Trans. N. Zealand Inst., xv., 1883, p. 79; *Probolium miersii*, Chilton, Proc. Linn. Soc. N. S. Wales, ix., 1885, p. 1043. *Stenothoe miersii*, Stebbing, Das Tierreich, xxi., 1906, p. 200. The species is still obscure.

Family PHLIANTIDÆ.

PALINNOTUS THOMSONI, *Stebbing.*

Pereionotus thomsoni, Stebbing, Trans. Linn. Soc., vii., 1899, p. 417, pl. xxxvA. *Palinnotus thomsoni*, Stebbing, Das Tierreich, xxi., 1906, p. 202.

IPHIPLATEIA WHITELEGGEI, *Stebbing.*

Iphiplateia whiteleggei, Stebbing, Trans. Linn. Soc., vii., 1899, p. 415, pl. xxxiv.; *Id.*, Das Tierreich, xxi., 1906, p. 203, fig. 52, 53.

Family COLOMASTIGIDÆ

COLOMASTIX BRAZIERI, *Haswell.*

Colomastix brazieri, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 341, pl. xxii., fig. 4, e, f, g, x. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 206.

Family OCHLESIDÆ.

OCHLESIS INNOCENS, *gen. et sp.nov.*

See ante, p. 582.

Family ACANTHONOTOZOMATIDÆ.

IPHIMEDIA AMBIGUA, *Haswell.*

See ante, p. 584, for discussion of this species, though not included in the "Thetis" collection.

IPHIMEDIA DISCRETA, *sp.nov.*

See ante, p. 586.

IPHIMEDIA STIMPSONI, *Bate.*

Iphimedia obesa, Stimpson (*non* Rathke), Proc. Acad. Nat. Sci. Philad., vii., 1855, p. 393. *I. stimpsoni*, Bate, Cat. Amph. Brit. Mus., 1862, p. 374. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 217.

Family LILJEBORGIIDÆ.

LILJEBORGIA DUBIA, *Haswell.*

Eusirus dubius, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 331, pl. xx., fig. 3, e, f, x; *Id.*, var. *ibid.*, x., 1885, p. 100, pl. xiv., fig. 1; *Eusirus affinis*, *ibid.*, p. 101, pl. xiv., fig. 2-4. *Liljeborgia haswelli*, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 895, pl. xcii. *Id.*, G. M. Thomson, Ann. Mag. Nat. Hist., (7), x., 1902, p. 463. *Liljeborgia dubia*, Stebbing, Das Tierreich, xxi., 1896, p. 233. *Lilljeborgia dubia*, A. O. Walker, Nat. Antarct. Exp., iii., 1907, p. 35.

LILJEBORGIA ÆQUABILIS, *Stebbing.*

See ante, p. 588.

Family ŒDICEROTIDÆ.

EXŒDICEROS FOSSOR, *Stimpson.*

Œdicerus fossor, Stimpson, Proc. Ac. Nat. Sci. Philad., vii., 1855, p. 393. *Œdicerus arenicola*, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 325, pl. xxiv., fig. 3, f, g, h, k, m. *Exœdiceros fossor*, Stebbing, Das Tierreich, xxi, 1906, p. 239.

ŒDICEROS LATRANS, *Haswell.*

Œdicerus latrans, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 324, pl. xix., fig. 1, e, f, g, h, k, l, m, p, x. *Œdiceros latrans*, Stebbing, Das Tierreich, xxi., 1906, p. 245. The species is still obscure.

ŒDICEROIDES ORNATUS, *Stebbing.*

See ante, p. 589.

Family TIRONIDÆ.

BRUZELIA AUSTRALIS, *sp.nov.*

See ante, p. 590.

SYRRHOE SEMISERRATA, *Stebbing.*

Syrrhoe semiserrata, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 793, pl. li..; *Id.*, Das Tierreich, xxi., 1906, p. 283.

Family CALLIOPIIDÆ.

SANCHO PLATYNOTUS, *Stebbing.*

Sancho platynotus, Stebbing, Trans. Linn. Soc., vii., 1897, p. 42, pl. ix.A.; *Id.*, Das Tierreich, 1906, p. 288, fig. 72, 73.

PARACALLIOPE FLUVIATILIS, *G. M. Thomson.*

Calliope fluviatilis, G. M. Thomson, Trans. N. Zealand Inst., xi., 1879, p. 240, pl. x.c., fig. 4, a-c. *Pherusa australis*, Haswell, Proc. Linn. Soc. N. S. Wales, v., 1880, p. 103, pl. vii., fig 1, f, g, x. *Paracalliope fluviatilis*, Stebbing, Das Tierreich, xxi., 1906, p. 297.

HARPINIOIDES DREPANOCHEIR, *Stebbing.*

See ante, p. 592.

APHERUSA LÆVIS, *Haswell.*

Pherusa laevis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 260, pl. ix., fig. 4, a, b. The species still obscure.

Family ATYLIDÆ.

NOTOTROPIS HOMOCHIR, *Haswell.*

Atylus homochir, Haswell, Proc. Linn. Soc. N. S. Wales, x., 1885, p.101, pl xiii., fig. 5-7. *Nototropis homochir*, Stebbing, Das Tierreich, xxi., 1906, p. 333, fig. 77, 78.

Family EUSIRIDÆ.

EUSIROIDES MONOCULOIDES, *Haswell.*

See ante, p. 595.

EUSIROIDES CRASSI, *Stebbing.*

See ante, p. 594.

EUSIROIDES LIPPUS, *Haswell.*

Atylus lippus, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879 p. 328, pl. xx., fig. 1 a, b, c, e, f, g, x. *Eusiroides lippus*, Stebbing, Das Tierreich, xxi., 1906, p. 346. Species still obscure.

Family PONTOGENEIIDÆ.

PONTOGENEIA TASMANIÆ, *G. M. Thomson.*

Atyloides tasmaniæ, G. M. Thomson, Proc. Roy. Soc. Tas., 1892 (1893), p. 21, pl. ii., fig. 9-15, pl. iii., fig. 1, 2. *Pontogeneia tasmaniæ*, Stebbing, Das Tierreich, xxi., 1906, p. 361. Species still obscure.

ATYLOIDES SERRATICAUDA, *Stebbing.*

Atyloides serraticauda, Stebbing, Chall. Rep., Zool., xxix., 1888, p. 920, pl. lxxviii. *Id.*, A. O Walker, Journ. Linn. Soc., xxix., 1903, p. 58, pl. xi., fig. 90. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 362. *Id.*, Chevreux, Exp. Antarct. Franç. Amphip., 1906, p. 87.

ATYLOIDES GABRIELI, *Sayce.*

Atyloides gabrieli, Sayce, Proc. Roy. Soc. Vict., xiii., 1901, p. 230, pls. xxxvii., xxxviii.

ATYLOIDES FONTANUS, *Sayce.*

Atyloides fontanus, Sayce, Proc. Roy. Soc. Vict., xv., 1902, p. 49, pl. v.

PARAMŒRA AUSTRINA, *Bate.*

Atylus austrinus, Bate, Cat. Amph. Brit. Mus., 1862, p. 137, pl. xxvi., fig. 4. *Paramœra australis*, Miers, Ann. Mag. Nat. Hist., (4), xvi., 1875, p. 75. *Atylus megalophthalmus*, Haswell, Proc. Linn. Soc. N.S.Wales, v., 1880, p.102, pl.vi., fig. 4, a, f, f^1, g, g^1, p. *Paramœra austrina*, Stebbing, Das Tierreich, xxi., 1906, p. 363. Not certainly distinct from the next species.

PARAMŒRA SIMPLEX, *Dana.*

Amphitoe (Iphimedia) simplex, Dana, Proc. Amer. Acad., ii., 1852, p. 217. *Atylus microdeuteropus*, Haswell, Proc. Linn. Soc. N. S.Wales, v., 1880, p. 102, pl. vi., fig. 3, a, b, f, g, p, x.

PARAMŒRA FASCICULATA, *G. M. Thomson.*

Megamœra fasciculata, G. M. Thomson, Ann. Mag. Nat. Hist., (5), vi., 1880, p. 5, pl. i., fig. 5; *Mœra fasciculata*, G. M. Thomson, Proc. Roy. Soc. Tas., 1893, 1892, p. 28. *Mœra fasciculata*, Chilton, Trans. N. Zealand. Inst., xxxviii., 1906, p. 271.

Family GAMMARIDÆ.

PARAPHERUSA CRASSIPES, *Haswell.*

Harmonia crassipes, Haswell, P. Linn. Soc. N.S. Wales, iv., 1880, pp. 330, 349, pl.xix., fig. 3; *Id.*, x., 1885, p. 106, pl. xvi., fig. 9. *Parapherusa crassipes*, Stebbing, Das Tierreich, xxi., 1906, p. 383.

AMATHIBLOPSIS AUSTRALIS, *Stebbing.*

Amathiblopsis australis, Stebbing, Ann. Mag. Nat. Hist., (5), xi., 1883, p. 205. *Id.*, Das Tierreich, xxi., 1906, p. 385.

NEONIPHARGUS THOMSONI, *Stebbing.*

Neoniphargus montanus, G. M. Thompson, Proc. Roy. Soc. Tas., 1892 (1893), p. 70, pl. vi., fig. 1-13. *Neoniphargus thomsoni*, Stebbing, Trans. Linn. Soc., vii., 1899, p. 425. *Neoniphargus montanus*, Sayce, Ann. Mag. Nat. Hist., (7), viii., 1901, p. 562; *Unimelita montanus*, Sayce, Proc. Roy. Soc. Vict., xiii., 1901, p. 237. *Neoniphargus thomsoni*, Sayce, *Id.*, xv. 1902, p. 58. *Id.*, Stebbing, Das Tierreich, xxi., 1906, pp. 404, 731.

NEONIPHARGUS SPENCERI, *Sayce.*

Unimelita spenceri, Sayce, Proc. Roy. Soc. Vict., xiii., 1901, p. 238, pl. xl.; *Neoniphargus spenceri*, Sayce, *id.*, xv., 1902, p. 57. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 731.

NEONIPHARGUS, FULTONI, *Sayce.*

Neoniphargus fultoni, Sayce, Proc. Roy. Soc. Vict., xv., 1902, p. 57, pl. vii. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 731.

NIPHARGUS MORTONI, *G. M. Thomson.*

Niphargus mortoni, G. M. Thompson, Proc. Roy. Soc., Tas., 1892 (1893), p. 58, pl. iv., figs. 11, 12., pl v., fig. 1-5. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 731.

NIPHARGUS PULCHELLUS, *Sayce.*

Niphargus pulchellus, Sayce, Proc. Roy. Soc. Vict., xii., 1900, p. 152, pls. xv., xvi.; *Id.*, Ann. Mag. Nat. Hist., (7), viii., 1901, p. 558. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 731.

PARELASMOPUS SULUENSIS, *Dana.*

Gammarus suluensis, Dana, Proc. Am. Ac., ii., 1852, p. 210. *Parelasmopus suluensis*, Stebbing, Rep. Voy. Challenger, xxix., 1888, pl. c.; Stebbing, Das Tierreich, xxi., 1906, pp. 417, 732. *Id.*, Chevreux, Mém. Soc. Zool. France, xx., 1908, p. 478.

MELITA FRESNELII, *Audouin.*

See ante, p. 596.

PARACERADOCUS MICRAMPHOPUS, *sp.nov.*

See ante, p. 597.

CERADOCUS RUBROMACULATUS, *Stimpson.*

See ante, p. 598.

MÆRA INAEQUIPES, *A. Costa.*

See ante, p. 599.

MÆRA HAMIGERA, *Haswell.*

See ante, p. 600.

MÆRA MASTERSII, *Haswell.*

Megamoera Mastersii, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 265, pl. xi., fig. 1, a, b, x. *Megamoera thomsoni*, Miers, Rep. Voy. Alert, 1884, p. 318, pl. xxxiv., fig. B. *Maera mastersii*, Stebbing, Das Tierreich, xxi., 1906, p. 439. *Maera mastersi*, Chevreux, Mém. Soc. Zool. France, xx., 1908, p. 481.

MÆRA RAMSAYI, *Haswell.*

Melita? Ramsayi, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1879, p. 264, pl. x, fig. 1, a, b; *Moera Ramsayi*, Haswell, *ibid.*, p. 334.

MÆRA SPINOSA, *Haswell.*

Moera spinosa, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 268, pl. x., fig. 5, a, b, c.

MÆRA FESTIVA, *Chilton.*

Moera festiva, Chilton, Proc. Linn. Soc. N. S. Wales, ix., 1885, p. 1037, pl. xlvi., fig. 2, a, b, c. *Moera festiva*, Stebbing, Das Tierreich, xxi., 1906, pp. 431, 732.

In *Das Tierreich* this and the two preceding species are made synonyms of *Ceradocus rubromaculatus*, but the position of all three should rather be regarded as still doubtful. *M. festiva* shows agreement with Haswell's *M. hamigera*.

ELASMOPUS SUBCARINATUS, *Haswell.*

See ante, p. 602.

ELASMOPUS DIEMENENSIS, *Haswell.*

Megamœra diemenensis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 266, pl. xi., fig. 3. *Elasmopus diemenensis*, Stebbing, Das Tierreich, xxi., 1906, p. 442.

ELASMOPUS SUENSIS, *Haswell.*

Megamœra suensis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 335, pl. xxi., fig. 5f, 5g. *Elasmopus suensis*, Stebbing, Das Tierreich, xxi., 1906, p. 442.

ELASMOPUS VIRIDIS, *Haswell.*

Moera viridis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 333, pl. xxi., fig 2, f, g, h, x. *Elasmopus viridis*, Stebbing, Das Tierreich, xxi., 1906, p. 445. *Id.*, Chevreux, Mém. Soc. Zool. France, xx., 1908, p. 482.

ELASMOPUS BOECKII, *Haswell.*

Megamœra boeckii, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 336, pl. xxi, fig. 6f, 6g. *Elasmopus boeckii*, Stebbing, Das Tierreich, xxi., 1906, p. 445.

ELASMOPUS CRASSIMANUS, *Miers.*

Moera crassimana, Miers, Rep. Voy. Alert, 1884, p. 316. *Elasmopus crassimanus*, Stebbing, Das Tierreich, xxi., 1906, p. 443. The species is still obscure.

GAMMARUS AUSTRALIS, *Sayce.*

Gammarus australis, Sayce, Proc. Roy. Soc. Vict., xiii., 1901, p. 233, pl. xxxix.; *Ibid.*, xv., 1902, p. 51.

GAMMARUS HAASEI, *Sayce.*

Gammarus haasei, Sayce, Proc. Roy. Soc. Vict., xv., 1902, p. 53, pl. vi. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 733.

Family DEXAMINIDÆ.

DEXAMINE MIERSII, *Haswell.*

Dexamine miersii, Haswell, Proc. Linn. Soc. N. S. Wales, x., 1885, p. 102, pl. xiii, figs. 8-12. The species is still obscure.

PARADEXAMINE PACIFICA, *G. M. Thomson.*

Dexamine pacifica, G. M. Thomson, Trans. N. Zealand Inst., xi., 1879, p. 238, pl. x.B, fig. 4. *Paradexamine pacifica*, Stebbing, Das Tierreich, xxi., 1906, p. 518.

PARADEXAMINE FLINDERSI, *Stebbing.*

See ante, p. 603.

POLYCHERIA ANTARCTICA, *Stebbing.*

Dexamine antarctica, Stebbing, Ann. Mag. Nat. Hist., (4), xv., 1875, p. 184, pl. xv. A, fig. 1; *Polycheria antarctica*, Stebbing, Das Tierrich, xxi., 1906, p. 520. *Id.*, A. O. Walker, Nat. Antarct. Exp., iii., 1907, p. 34.

POLYCHERIA TENUIPES, *Haswell.*

Polycheria tenuipes, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 345, pl. xxii., fig. 8, e, f, g. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 520.

POLYCHERIA BREVICORNIS, *Haswell.*

Polycheria brevicornis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 346. *P. tenuipes*, Stebbing, Das Tierreich, xxi., 1906, p. 520. This and the preceding species are still obscure.

Family TALITRIDÆ.

TALITRUS SYLVATICUS, *Haswell.*

Talitrus sylvaticus, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 246, pl. vii, fig. 1, a, b, b^1, c, d; *Talitrus assimilis*, Haswell, *ibid.*, v., 1880, p. 97, pl. v., fig. 1g; *Talitrus sylvaticus* and *Talitrus affinis* (error for *assimilis*), *ibid.*, x., 1885, p. 95, pl. x., fig. 1. *T. sylvaticus*, Stebbing, Das Tierreich, xxi., 1906, p. 524.

ORCHESTIA MARMORATA, *Haswell.*

Talorchestia? marmorata, Haswell, Proc. Linn. Soc. N. S. Wales, v., 1880, p. 99, pl. v., fig. 3, f. *Orchestia marmorata*, Stebbing, Das Tierreich, xxi., 1906, p. 536.

ORCHESTIA PICKERINGII, *Dana.*

Orchestia pickeringii, Dana, Wilkes U. S. Expl. Exp., xiii., 1853, pp. 882, 1595, pl. lix, fig. 9. *Orchestia macleayana*, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 250, pl. vii., fig. 2, a, b, d. *? Allorchestes crassicornis*, var. *coogeensis*, Chilton, *ibid.*, ix., 1885, p. 1035, pl. xlvi., fig. 1a, 1b. *Orchestia pickeringii*, Stebbing, Das Tierreich, xxi, 1906, p. 538.

TALORCHESTIA PRAVIDACTYLA, *Haswell.*

Talorchestia pravidactyla, Haswell, Proc. Linn. Soc. N. S. Wales, v., 1880, p. 100, pl. v., fig. 5, f, f, g. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 546.

TALORCHESTIA LIMICOLA, *Haswell.*

Talorchestia limicola, Haswell, Proc. Linn. Soc. N. S. Wales, v., 1880, p. 98, pl. v., fig. 2, f, f, g, g. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 547.

TALORCHESTIA QUADRIMANA, *Dana.*

Orchestia quadrimana, Dana, Proc. Amer. Acad., ii., 1852, p. 204. *Id.*, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 248, pl. vii., fig. 3, a, b, c, d, e. *Id.*, Stebbing, Das Tierreich, xxi, 1906, p. 548.

TALORCHESTIA DIEMENENSIS, *Haswell.*

Talorchestia diemenensis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 248, pl. vii., fig. 6a, b, c, d. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 548.

TALORCHESTIA SPINIPALMA, *Dana.*

Orchestia spinipalma, Dana, Proc. Amer. Acad., ii., 1852, p. 203 *Talorchestia terræ-reginæ*, Haswell, Proc. Linn. Soc. N. S. Wales, v., 1880, p. 98, pl. v., fig. 4, f, f, g, and 2g on right of plate (by error for 4g). *Talorchestia spinipalma*, Stebbing, Das Tierreich, xxi., 1906, p. 552.

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TALORCHESTIA NOVÆ-HOLLANDIÆ, *Stebbing.*

Talorchestia novæ-hollandiæ, Stebbing, Trans. Linn. Soc., vii., 1899, p. 399, pl. xxxi.A; *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 553.

CHILTONIA AUSTRALIS, *Sayce.*

Hyalella australis, Sayce, Proc. Roy. Soc. Vict., xiii., 1901, p. 226, pl. xxxvi.; *Chiltonia australis*, Sayce, *ibid.*, xv., 1902, p. 47. *Id.*, Stebbing, Das Tierreich, xxi, 1906, p. 735.

CHILTONIA SUBTENUIS, *Sayce.*

Chiltonia subtenuis, Sayce, Proc. Roy. Soc. Vict., xv., 1902, p. 48, pl. iv. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 735.

NEOBULE GAIMARDII, *Milne-Edwards.*

Amphitoe gaimardii, Milne-Edwards, Hist. Nat. Crust., iii., 1840, p. 37. *Neobule algicola*, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 255, pl. viii., fig. 4, a, b.; and *ibid.*, x., 1885, p. 96, pl. xi., figs. 4-6. *Neobule gaimardii*, Stebbing, Das Tierreich, xxi., 1906, p. 556.

HYALE MAROUBRÆ, *Stebbing.*

Hyale maroubræ, Stebbing, Trans. Linn. Soc., vii., 1899,p. 405, pl. xxxii.C; *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 563.

HYALE CRASSICORNIS, *Haswell.*

Allorchestes crassicornis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 252, pl. vii., fig. 5, a, b; and *ibid.*, x., 1885, p. 95, pl. x., figs. 2-5. *Hyale crassicornis*, Stebbing, Das Tierreich, xxi., 1906, p. 568.

HYALE NIGRA, *Haswell.*

Allorchestes niger, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 319; and *ibid.*, x., 1885, p. 96, pl. xi., figs. 1-3. *Hyale nigra*, Stebbing, Das Tierreich, xxi., 1906, p. 571.

HYALE RUPICOLA, *Haswell.*

Allorchestes rupicola, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 250, pl. viii., fig. 1, a, b; *ibid.*, x., 1885, p. 96, pl. x., figs. 9-12. *Id*, Chilton, *ibid.*, ix., 1885, p. 1036. *Hyale rupicola*, Stebbing, Das Tierreich, xxi., 1906, p. 573.

HYALE, *sp.*, *Haswell.*

Allorchestes longicornis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 251, pl. vii., fig. 4, a, b; *ibid.*, x., 1885, p. 95, pl. x., figs. 6-8. *Hyale*, sp., Stebbing, Das Tierreich, xxi., 1906, p. 574.

ALLORCHESTES COMPRESSUS, *Dana.*

Allorchestes compressa + *Allorchestes australis*, Dana, Proc. Amer. Acad., ii., 1852, pp. 205, 206. *Aspidophoreia diemenensis*, Haswell, Proc. Linn. Soc. N. S. Wales, v., 1880, p. 101, pl. vi., fig. 2, f. *Allorchestes compressus*, Stebbing, Das Tierreich, xxi., 1906, p. 581.

ALLORCHESTES HUMILIS, *Dana.*

Allorchestes humilis, Dana, Proc. Amer. Acad., ii., 1852, p. 206. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 584.

Family AORIDÆ.

AORA TYPICA, *Kröyer.*

Aora typica, Kröyer, Naturhist. Tidsskrift, (2), i., 1845, p. 328, pl. iii., fig. 3 a-l. *Microdeuteropus mortoni*, Haswell, and *Microdeuteropus tenuipes*, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 339, pl. xxii., fig. 2f, 2g, and fig. 1, f-g. *Aora typica*, Stebbing, Das Tierreich, xxi., 1906, p. 587.

MICRODEUTOPUS HASWELLI, *Stebbing.*

Microdeuteropus chelifer, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 340, pl. xxii., fig. 3, f-g. *Microdeutopus haswelli*, Stebbing, Ann. Mag. Nat. Hist., (7), iii., 1899, p. 350; *Id.*, Das Tierreich, xxi., 1906, p. 591.

LEMBOS PHILACANTHUS, *Stebbing.*

See ante, p. 605.

LEMBOIDES AUSTRALIS, *Haswell.*

Microdeuteropus australis, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 271, pl. xi., fig. 5, a, b. *Lemboides australis*, Stebbing, Ann. Mag. Nat. Hist., (7), iii., 1899, p. 350; *Id.*, Das Tierreich, xxi., 1906, p. 601.

PARAOROIDES UNISTILUS, *gen. et sp. nov.*

See ante, p. 606.

XENOCHEIRA FASCIATA, *Haswell*

Xenocheira fasciata, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 272, pl. xi., fig. 6, a, b, c; *Ibid.*, x., 1885, p. 105. pl. xvi., figs. 1-3. *Id.*, Stebbing, Das Tierreich, xxi., p. 624, For transfer of this genus from the Photidæ to the Aoridæ, see Chevreux, Mém. Soc. Zool. France, xx., 1908, p. 515.

Family PHOTIDÆ.

PHOTIS BREVICAUDATA, *Stebbing.*

Photis brevicaudata, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1068, pl. cviii; *Id.*, Das Tierreich, xxi., 1906, p. 606.

PHOTIS DOLICHOMMATA, *sp.nov.*

See ante, p. 609.

CHEIRIPHOTIS AUSTRALIÆ, *sp.nov.*

See ante, p. 611.

HAPLOCHEIRA BARBIMANA, *G. M. Thomson.*

Gammarus barbimanus, G. M. Thomson, Trans. N. Zealand Inst., xi., 1879, p. 241, pl. x.D, fig. 1, a, b, c, d, e, f. *Haplocheira typica*, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 273, pl. xi., fig. 2, a, b. *Haplocheira plumosa* + *Haplocheira barbimanus*, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1172, pl. cxxvi., and p. 1177; *Haplocheira barbimana*, Stebbing, Das Tierreich, xxi., 1906, p. 609, figs. 104, 105. *Id*, A. O. Walker, Nat. Antarct. Exp., iii., 1907, p. 35.

EURYSTHEUS ATLANTICUS, *Stebbing.*

See ante, p. 614.

EURYSTHEUS CRASSIPES, *Haswell.*

Moera crassipes, Haswell, Proc. Linn. Soc. N. S. Wales, v., 1880, p. 103, pl. vii., fig. 2, g, x. *Eurystheus crassipes*, Stebbing, Das Tierreich, xxi., 1906, p. 612.

EURYTHEUS THOMSONI, *Stebbing.*

See ante, p. 614.

EURYSTHEUS DENTIFER, *Haswell.*

Moera dentifera, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 332, pl. xx., fig. 4, f, g; ? *Moera approximans*, Haswell, *ibid.*, p. 334, pl. xxi., fig. 3f, 3g. *Eurystheus dentifer*, Stebbing, Das Tierreich, xxi., 1906, p. 615.

Family AMPITHOIDÆ.

AMPITHOE CINEREA. *Haswell.*

Amphithoë cinerea, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 269, pl. xi., fig. 4, a, b, and *Amphithoë grandimanus*, Haswell, *ibid.*, p. 270. *Ampithoe cinerea*, Stebbing, Das Tierreich, xvii., 1906, p. 634.

AMPITHOE QUADRIMANA, *Haswell.*

Amphithoë quadrimanus, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 337, pl. xxi., fig. 7, f, g. *Ampithoe quadrimana*, Stebbing, Das Tierreich, xxi., 1906, p. 635.

AMPITHOE FLINDERSI, *Stebbing.*

See ante, p. 616.

AMPITHOE AUSTRALIENSIS, *Bate.*

Amphithoë australiensis, Bate, Cat. Amph. Brit. Mus., 1862, p. 237, pl. xli., fig. 7. *Ampithoe australiensis*, Stebbing, Das Tierreich, xxi., 1906, p. 641. An indeterminate species.

GRUBIA SETOSA, *Haswell.*

Amphithoë setosa, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 270. *Grubia setosa*, Stebbing, Das Tierreich, xxi., 1906, p. 614.

Family JASSIDÆ.

WYVILLEA LONGIMANA, *Haswell.*

Wyvillea longimanus, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 337, pl. xxii., fig. 7, g. *Wyvillea longimana*, Stebbing, Das Tierreich, xxi., 1906, p. 648.

JASSA PULCHELLA, *Leach.*

Jassa pulchella, Leach, Edinb. Encycl., vii., 1814, p. 433. *Crattophium validum*, Dana, Wilkes U.S. Expl. Exp. xiii., 1853, p. 841, pl. lvi., fig. 2. *Podocerus australis*, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 338, pl. xxi., fig. 8. *Jassa pulchella*, Stebbing, Das Tierreich, xxi., 1906, pp. 654, 739. This species from Watson's Bay was sent me some years ago by Mr. T. Whitelegge.

Family COROPHIIDÆ.

CERAPUS ABDITUS, *Templeton.*

See ante, p. 616.

SIPHONŒCETES AUSTRALIS, *sp.nov*

See ante, p. 619.

DRYOPOIDES WESTWOODI, *Stebbing.*

See ante, p. 621.

Family PODOCERIDÆ.

LÆTMATOPHILUS HYSTRIX, *Haswell.*

Cyrtophium ? hystrix, Haswell, Proc. Linn. Soc. N. S. Wales, v., 1880, p. 104, pl. vii., fig. 3, f, x; *Læmatophilus hystrix*, Haswell, *ibid.*, x., 1885, p. 110 *Lætmatophilus hystrix*, Stebbing, Das Tierreich, xxi., 1906, p. 697.

CYRTOPHIUM MINUTUM, *Haswell.*

Cyrtophium minutum, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 343, pl. xxii., fig. 6f, 6g; *Ibid.*, x., 1885, p. 109, pl. xviii., figs. 1-5, 9. *Id.*, Stebbing, Das Tierreich, xxi., 1906, p. 698.

LEIPSUROPUS PARASITICUS, *Haswell.*

Cyrtophium parasiticum, Haswell, Proc. Linn. Soc. N. S. Wales, iv., 1879, p. 274, pl. xii., fig. 1, a, a, b, x. *Leipsuropus parasiticus*, Stebbing, Das Tierreich, xxi., 1906, p. 699.

PODOCERUS INCONSPICUUS, *Stebbing.*

Platophium inconspicuum, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1194, pl. cxxxi.; *Podocerus inconspicuus*, Stebbing, Ann. Nat. Hist., (7), iii., 1899, p. 239; *Id.*, Stebbing, Das Tierreich, xxi, 1906, p. 702.

PODOCERUS LOBATUS, *Haswell.*

Dexiocerella lobata, Haswell, Proc. Linn. Soc. N. S. Wales, x., 1885, p. 110, pl. xviii., figs. 6-8. *Podocerus lobatus*, Stebbing, Das Tierreich, xxi., 1906, p. 703.

PODOCERUS LÆVIS, *Haswell.*

Dexiocerella lævis, Haswell, Proc. Linn. Soc. N. S. Wales, x., 1885, p. 111, pl. xviii., figs. 10-12. *Podocerus lævis*, Stebbing, Das Tierreich, xxi., 1906, p. 704.

PODOCERUS CRISTATUS, *G. M. Thomson.*

Cyrtophium cristatum, G. M. Thomson, Ann. Mag. Nat. Hist., (5), iv., 1879, p. 331, pl. xvi., figs. 9-15. *Cyrtophium dentatum*, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1879, p. 342, pl. xx., fig. 5, f, g; *Dexiocerella dentata, ibid.*, x., 1885, p. 109, pl. xvii., figs. 8-12. *Podocerus cristatus*, Stebbing, Das Tierreich, xxi., 1906, p. 706.

PODOCERUS HYSTRIX, *sp.nov.*

See ante, p. 622.

ICILIUS AUSTRALIS, *Haswell.*

See ante, p. 627.

ICILIUS PUNCTATUS, *Haswell.*

See ante, p. 627.

ICILIUS DANÆ, *Stebbing.*

See ante, p. 626.

CAPRELLIDEA.

Family CAPRELLIDÆ.

PARAPROTO SPINOSA, *Haswell.*

Proto spinosa, Haswell, Proc. Linn. Soc. N.S. Wales, ix., 1885, p. 995, pl. xlix., fig. 1. *Paraproto spinosa*, Mayer, Siboga Exp., xxxiv., 1903, p. 25, pl. i., figs. 8, 9, pl. vi., figs. 16-19, pl. ix., figs. 7, 54.

PARAPROTO CONDYLATA, *Haswell.*

Proto condylata, Haswell, Proc. Linn. Soc. N.S. Wales, ix., 1885, p. 993, pl. xlviii., figs. 1-4. *Paraproto condylata*, Mayer, Siboga Exp., xxxiv., 1903, p. 25, pl. i., fig. 10, pl. vi., fig. 20.

METAPROTO NOVÆ-HOLLANDIÆ, *Haswell.*

Proto novæ-hollandiæ, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1879, p. 275, pl. xii., fig. 3, a, b, c; *Id.*, *ibid.*, ix., 1885,

p. 997; x., p. 111, pl. xviii., figs. 13-16. *Id.*, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1230. *Id.*, Mayer, Flora Fauna Neapel, xvii., 1890, p. 14; *Metaproto novæ-hollandiæ*, Mayer, Siboga Exp., xxxiv., 1903, p. 26, pl. i., figs. 11, 12, pl. vi., figs. 24-28, pl. ix., figs. 3, 50.

DODECAS HEXACENTRUM, *Mayer.*

Dodecas hexacentrum, Mayer, Siboga Exp., xxxiv., 1903, p. 29, pl. i., figs. 14, 15, pl. vi., figs. 33, 34.

DODECAS DECACENTRUM, *sp.nov.*

See ante, p. 629.

HIRCELLA CORNIGERA, *Haswell.*

Caprella cornigera, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1879, p. 347, pl. xxiii., fig. 4, f, g, k. *Hircella cornigera*, Mayer and Haswell, *ibid.*, ix., 1885, p. 999. *Id.*, Mayer, Siboga Exp., xxxiv., 1903, p. 31.

ORTHOPROTELLA AUSTRALIS, *Haswell.*

See ante, p. 632.

METAPROTELLA EXCENTRICA, *Mayer.*

Metaprotella excentrica, Mayer, Flora Fauna Neapel, xvii., 1890, p. 25, pl. i., figs. 20, 21, pl. iii., figs 30, 31, pl. v., fig. 22; *Id.*, Mayer, Siboga Exp., xxxiv., 1903, p. 40.

METAPROTELLA HASWELLIANA, *Mayer.*

Protella haswelliana, Mayer, Flora Fauna Neapel, vi., 1882, p. 32, figs. in text 8-10; *Metaprotella haswelliana*, Mayer, *ibid.*, xvii., 1890, p. 24, pl. i., figs. 22, 23, pl. iii., figs. 28, 29, pl. v., figs. 23, 24, pl. vi., figs. 7, 23; *Id.*, Mayer, Siboga Exp., xxxiv., 1903, p. 39.

PARADEUTELLA ECHINATA, *Haswell.*

Caprella echinata, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1879, p. 346, pl. xxiii., fig. 2. *Protella echinata*, Mayer, Flora Fauna Neapel, vi., 1882, p. 32, figs. in text 6, 7. *Id.*, Haswell, Proc. Linn. Soc. N.S. Wales, ix., 1885, p. 998. *Paradeutella echinata*, Mayer, Flora Fauna Neapel, xvii., 1890, p. 30, pl. iii., figs. 42-44; *Id.*, Mayer, Siboga Exp., xxxiv., 1903, p. 46.

PARACAPRELLA ALATA, *Mayer.*

Paracaprella alata, Mayer, Siboga Exp., xxxiv., 1903, p. 67, pl. ii., figs. 40, 41, pl. ix., fig. 73. From Broken Bay, 4 or 5 fathoms, sent to Dr. Mayer by Professor Haswell.

CAPRELLA TENUIS, *Haswell.*

Caprella tenuis, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1879, p. 276, pl. xii., fig. 5, a. *Id.*, Mayer, Flora Fauna Neapel, vi., 1882, p. 71, left indeterminate. In Haswell's Revision of the Australian Læmodipoda (Proc. Linn. Soc. N.S. Wales, ix., 1885, p 993), this species is not mentioned.

CAPRELLA PENANTIS, *Leach.*

Caprella penantis, Leach, Edinb. Encycl., vii., 1814, p. 404. *Caprella acutifrons*, Latreille, Nouv. Dict. Hist. Nat., v., 1816. *Id.*, var. *neglecta*, Mayer, Siboga Exp., xxxiv., 1903, pp. 79, 80, 88, a specimen sent by Professor Haswell, from Port Jackson.

CAPRELLA EQUILIBRA, *Say.*

Caprella equilibra, Say, Journ. Acad. Nat. Sci. Philad., i., 1818, p. 391. *Caprella obesa*, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1879, p. 348, pl. xxiv., fig. 1, f, k. *Caprella æquilibra*, Mayer, Flora Fauna Neapel, vi., 1882, p. 45. *Id.*, Haswell, Proc. Linn. Soc. N.S. Wales, ix., 1885, p. 999. *Id.*, Mayer, Siboga Exp., xxxiv., 1903, p. 90.

CAPRELLA DANILEVSKII, *Czerniavski.*

Caprella danilevskii, Czerniavski, Mater. ad Zoogr. Pont., 1860, p. 92, pl. vi., figs. 21-34. *Caprella inermis*, Haswell, Proc. Linn. Soc. N.S. Wales, iv., 1879, p. 348, pl. xxiii., fig. 3, f, g; *Id.*, *ibid.*, ix., 1885, p. 1000. *Id.*, Mayer, Flora Fauna Neapel, vi., 1882, p. 71, figs. in text 26-29 (distinct from *C. inermis*, Grube, p. 53). *Caprella danilevskii*, Stebbing, Rep. Voy. Challenger, xxiv., p. 1264, pl. cxlv. *Id.*, Mayer, Flora Fauna Neapel, xvii., 1890, p. 58, pl. v., fig. 44, pl. vii., figs. 12, 13, 54; *Id.*, Mayer, Siboga Exp. xxxiv., 1903, p. 99.

CAPRELLA SCAURA, *Templeton.*

Caprella scaura, Templeton, Trans. Entom. Soc. London, i., 1836, p. 191, pl. xx., fig. 6. *Caprella attenuata*, Dana, Wilkes, U.S. Expl. Exp. xiii., 1852, p. 817, pl. lv., fig. 1, a-g. *Caprella scaura* and *Caprella attenuata*, Mayer, Flora Fauna Neapel,

vi., 1882, pp. 65, 67. *Caprella attenuata*, Haswell, Proc. Linn. Soc. N.S. Wales, ix., 1885, p. 1000. *Caprella scaura*, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1257, pl. cxliv. *Id.*, Mayer, Siboga Exp., xxxiv., 1903, p. 117, pl. v., figs. 13-18, pl. x., fig. 11.

HYPERIIDEA.

Family VIBILIIDÆ.

VIBILIA VIATOR, *Stebbing*.

Vibilia viator, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1286, pl. cxlviii.B, fig. E, perhaps identical with *Vibilia propinqua*, Stebbing, *ibid.*, p. 1279, pl. cxlvii. *Vibilia propinqua*, Vosseler, Plankton Exp. Humboldt-Stiftung, ii., 1901, Amphip., p. 124.

VIBILIA AUSTRALIS, *Stebbing*.

Vibilia australis, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1287, pl. cxlix. *Id.*, Vosseler, Plankton Exp. Humboldt-Stiftung, ii., 1901, Amphip., p. 124.

Family CYSTISOMATIDÆ.

CYSTISOMA LONGIPES, *Bovallius*.

Thaumatops longipes, Bovallius, Bihang K. Svensk. Vet. Ak. Handl., xi., 1886, No. 9, p. 13, figs. 15-23; *Id.*, K. Svensk. Vet. Ak. Handl. xxii., 1889, No. 7, p. 47, pl. iii., figs. 1-16. *Cystisoma longipes*, Stebbing, Rep. Voy. Challenger, xxix., 1888, pp. 575, 1334.

Family PHRONIMIDÆ.

PHRONIMA SEDENTARIA, *Forskål*.

Cancer sedentarius, Forskål, Descrip. Anim. in itin. orientali, 1775, p. 95. *Phronima sedentaria*, Stebbing, Rep. Voy. Challenger, xxix., p. 1357, pl. clxii.B. On this genus and species, see also Vosseler, Plankton Exp. Humboldt-Stiftung, ii., 1901, p. 1.

Family HYPERIIDÆ.

HYPERIA BENGALENSIS, *Giles*.

Lestrigonus bengalensis, Giles, Journ. Asiat. Soc. Bengal, lvi., 1887, p. 224, pl. vi., figs. 1-10. *Hyperia dysschistus*, Stebbing,

Rep. Voy. Challenger, xxix., 1888, p. 1388, pl. clxvii. *Id.*, Bovallius, K. Svensk. Vet. Ak. Handl., xxii., 1889, No. 7, p. 204. *Hyperia bengalensis*, A. A. Walker, Rep. Ceylon Pearl Fish., ii., 1904, p. 325.

EUTHEMISTO THOMSONI, *Stebbing*.

Themisto antarctica, G. M. Thomson (not *Id.*, Dana), Trans. N. Zealand Inst., xi., 1879, p. 243, pl. x. D, figs. 2, 3. *Euthemisto thomsoni*, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1414, pls. clxxiv., clxxv. *Euthemisto antarctica*, Bovallius, K. Svensk. Vet. Ak. Handl., xxii., 1889, No. 7, p. 294; *Euthemisto gaudichaudii*, Bovallius, *ibid.*, p. 299. *Euthemisto compressa*, Vosseler, Plankton Exp. Humboldt-Stiftung, ii., 1901, pp. 81, 86.

EUTHEMISTO AUSTRALIS, *Stebbing*.

Euthemisto australis, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1417. *Id.*, Bovallius, K. Svensk. Vet. Ak. Handl., xxii., 1889, No. 7, p. 298. *Id.*, Vosseler, Plankton Exp. Humboldt-Stiftung, ii., 1901, p. 86. The later authorities cited consider this species indeterminate, and on the preceding species are not in agreement. The discussion is too intricate to be disentangled here, but Bovallius and Vosseler agree in suppressing the name *Euthemisto thomsoni*.

Family PHROSINIDÆ.

PHROSINA AUSTRALIS, *Stebbing*.

Phrosina australis, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1431. *Phrosina semilunata* (part), Bovallius, K. Svensk. Vet. Ak. Handl., xxii., 1889, No. 7, p. 426.

ANCHYLOMERA BLOSSEVILLII, *Milne-Edwards*.

Anchylomera blossevillii, Milne-Edwards, Ann. Sci Nat., xx., 1830, p. 394. *Id.*, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1433, pl. clxxvii. *Anchylomera blossevillei*, Bovallius, K. Svensk. Vet. Ak. Handl., xxii., 1889, No. 7, p. 412, pl. xvii., figs. 1-22. *Id.*, Vosseler, Plankton Exp. Humboldt Stiftung, ii., 1901, p. 88, fig. 4 in text.

PRIMNO MACROPA, *Guérin*.

Primno macropa, Guérin, Magasin de Zoologie, vi., 1836, class 7, p. 4, pl. xvii., figs. 1a-1f. *Id.*, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1441, pl. clxxviii; *Primno latreillei*,

ibid., p. 1445, pl. clxxix.A ; *Primno menevillei, ibid.*, p. 1447, pl. clxxix.B. *Euprimno macropus*, Bovallius, K. Svensk. Vet. Ak. Handl., xxii., 1889, No. 7, p. 400, pl. xvii., figs. 23-40, pl. xviii., figs. 1, 2. *Id.*, Vosseler, Plankton Exp. Humboldt-Stiftung, ii., 1901, p. 87, pl. viii., fig. 21.

Family PHORCORRHAPHIDÆ.

PHORCORRHAPHIS EDWARDSI, *Stebbing.*

Phorcorrhaphis edwardsi, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1455, pl. clxxxi.

Family PLATYSCELIDÆ.

HEMITYPHIS TENUIMANUS, *Claus.*

Hemityphis tenuimanus, Claus, Die Gattungen und Arten der Platysceliden, 1879, p. 12. *Id.*, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1472, pl. clxxxiii.

TETRATHYRUS MONCŒURI, *Stebbing.*

Tetrathyrus moncœuri, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1480, pl. clxxxiv.

Family THYROPIDÆ.

This family name is adopted on the ground that *Thyropus*, Dana, appears to be the earliest genus in the family.

PARASCELUS PARVUS, *Claus.*

Parascelus parvus, Claus, Die Gattungen und Arten der Platysceliden, 1879, p. 20. *Id.*, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1500.

Family PRONOIDÆ.

EUPRONOË ATLANTICA, *Stebbing ?*

Eupronoë atlantica, Stebbing ? Rep. Voy. Challenger, xxix., 1888, pp. 1519, 1520.

PARAPRONOË CLAUSI, *Stebbing.*

Parapronoë clausi, Stebbing, Rep. Voy, Challenger, xxix., 1888, p. 1526, pl. cxc.

Family LYCÆIDÆ.

THAMNEUS PLATYRRHYNCHUS, *Stebbing.*

Thamneus platyrrhynchus, Stebbing, Rep. Voy. Challenger, xxix., p. 1558, pl. cxcviii.

PARALYCÆA GRACILIS, *Claus.*

Paralycæa gracilis, Claus, Die Gattungen und Arten der Platysceliden, 1879, p. 40. *Id.*, Stebbing, Rep. Voy. Challenger, xxix., 1888, p. 1568.

Family OXYCEPHALIDÆ.

STREETSIA OXYRHINGUS, *Prestandrea.*[14]

Orio oxyahingus, Prestandrea, Effem. Sci. Sicilia, vi., 1833, p. 10. *Oxycephalus porcellus*, Claus, Die Gattungen und Arten der Platysceliden, 1879, p. 48. *Id.*, Stebbing, Rep. Voy. Challenger, xxiv., p. 1587, pl. cciii. *Streetsia porcellus*, Bovallius, Oxycephalids, 1890, pp. 81, 83, pl. iv., figs. 4-6. *Streetsia porcella*, Senna, Bull. Soc. Entom. Italiana, xxxiv., 1902, p. 10. This species, taken by the "Challenger" between Api and Cape York, cannot perhaps strictly be counted as Australian, but the interesting identification by Dr. Angelo Senna is worth bringing under the notice of English readers. The name *Orio oxyrhingus*, Prestandrea, was mentioned in advance by Cocco, without description. The genus *Orio* falls to the earlier *Oxycephalus*, but in *Streetsia* the specific name *oxyrhingus* has priority and should be adopted.

Here it will be convenient to insert a notice of captures recorded by Mr. O. A. Sayce, in the *Victorian Naturalist*, xviii., No. 10, pp, 151-154, Feb. 6, 1902, under the heading "Dredging in Port Philip." At p.181, he writes :—"Amphipoda—*Amaryllis macrophthalmus*, very common ; *Phoxocephalus bassi*, *Moera rubromaculata*, *Liljeborgia haswelli*, several specimens of a new species of the genus Iphiplateia, and also *Icilius australis*. The two latter genera are remarkable in being much flattened and not compressed from side to side as nearly all the Amphipods are ; the antennæ also of Iphiplateia are peculiar. We spent the night lying comfortably off Sorrento, and from the shore in the morning we collected some sandhoppers, which I find belong to a new species of Orchestia."

[14] By misprint OXYAHINGUS.

On p. 153 he writes:—"Amongst a large number of sessile-eyed crustaceans we may mention the following Amphipods—*Eusiroides cæsuris, Syrrhoe semiserrata, Atyloides australis, Elasmopus subcarinata, Autonoe philacantha.*" On p. 154, after explaining that they stayed a night at St. Leonards, he writes:—"In the morning we went ashore and did some collecting. The sandhopper of the beach I found to be identical with *Talorchestia nova-hollandiæ*, so far only recorded from New South Wales, but which I have also taken at Beaumaris, and have just lately received specimens collected by Mr. E. Ashby, from Brighton, South Australia."

NOTICE.

The Plates belonging to Mr. Stebbing's Paper on Amphipoda follow after Plate No. lxvii., and are numbered xlvii.* to lx.*

EXPLANATION OF PLATE XLVII. *

A.

Tryphosa camelus, sp.nov.

n.s.—Line indicating natural size of specimen figured below.
a.s., *a.i.*—First and second antennæ.
mxp.—Maxillipeds.
gn. 1, *gn.2.*—First and second gnathopods.
prp. 2, *3*, *4*, *5*—Second, third, part of fourth, and fifth peræpods.
Pl. s. 4.—Profile of fourth pleon segment.
urp. 1, *2*, *3.*—First, second and third uropods.
T.—Telson.

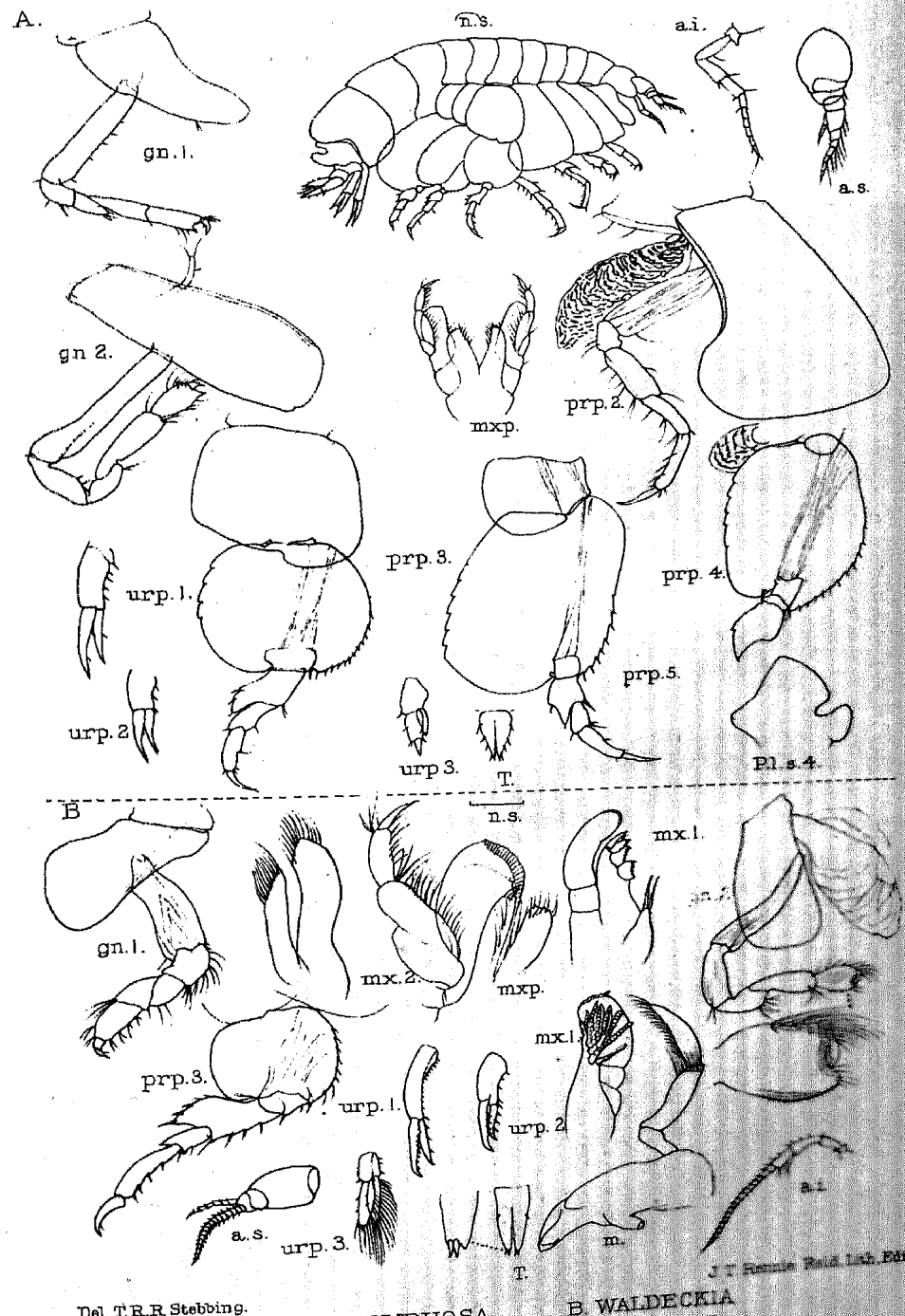
All the details are drawn to a uniform scale.

B.

Waldeckia chevreuxi, sp.nov.

n.s.—Line indicating natural size of specimen from which the details are figured.
a.s., *a.i.*—First and second antennæ.
m. mx. 1, *mx. 2*, *mxp.*—One of the mandibles; one of the first maxillæ showing breadth of spines, the other member of the pair figured below showing the spines edgewise, the apex of the palp full face, the inner plate concealed; the maxillipeds, with outer plate and palp of one side omitted.
gn. 1, *gn. 2.*—First and second gnathopods, with further enlargement of hand and finger of second gnathopod.
prp. 3.—Third peræopod.
urp. 1, *2*, *3*, *T.*—First, second, and third uropods, and telson, with further enlargement of one apex of the telson.

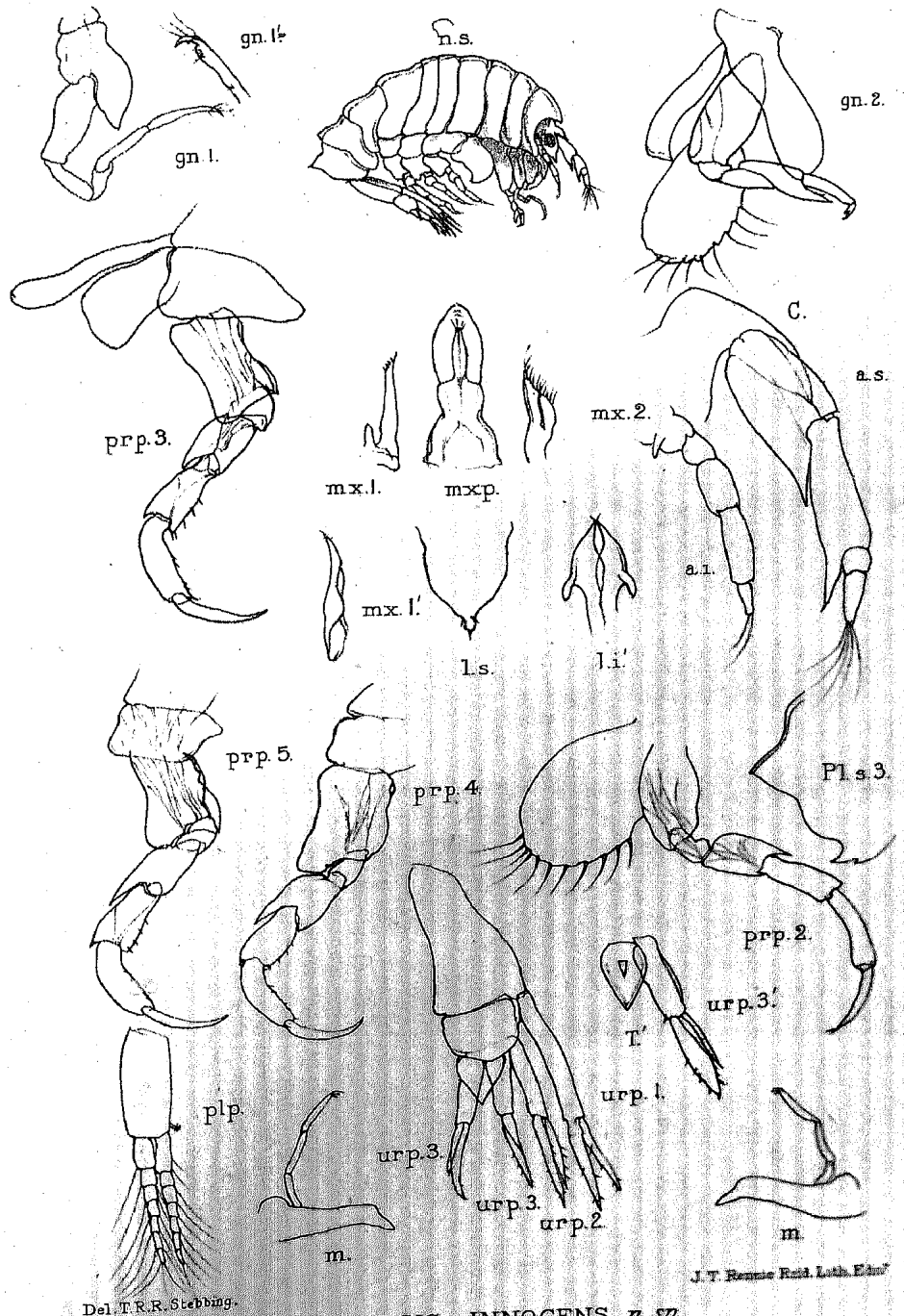
The mouth organs and further enlargements of gnathopod and telson are magnified to a higher scale than the other details.



EXPLANATION OF PLATE XLVIII.*

Ochlesis innocens, gen.nov. et sp.

n.s.—Line indicating natural size of specimen figured below.
a.s., *a.i.*—First and second antennæ.
l.s., *l.i.*—Upper and lower lips.
m.m., *mx.1*, *mx. 2*, *mxp.*—Mandibles, first and second maxillæ, and maxillipeds.
mx. 1'.—First maxilla.
gn. 1, *gn. 2*, *prp. 2*, *3*, *4*, *5.*—First and second gnathopods, second, third, fourth, and fifth peraeopods.
gn. 1'.—Finger and part of sixth joint of first gnathopod.
plp.—One of the pleopods.
urp. 1, *2*, *3*, *3.*—Pleon from the fourth segment to the end, with urp. 1 and 2 of the right side, and the pair of urp. 3.
T., *urp. 3.*—The telson and third uropod of the specimen figured at the top of the plate, of which also the lower lip, first maxilla, part of first gnathopod, third uropod and telson are represented. All the other details were drawn from a slightly smaller specimen. All the detail figures are drawn to the same scale.



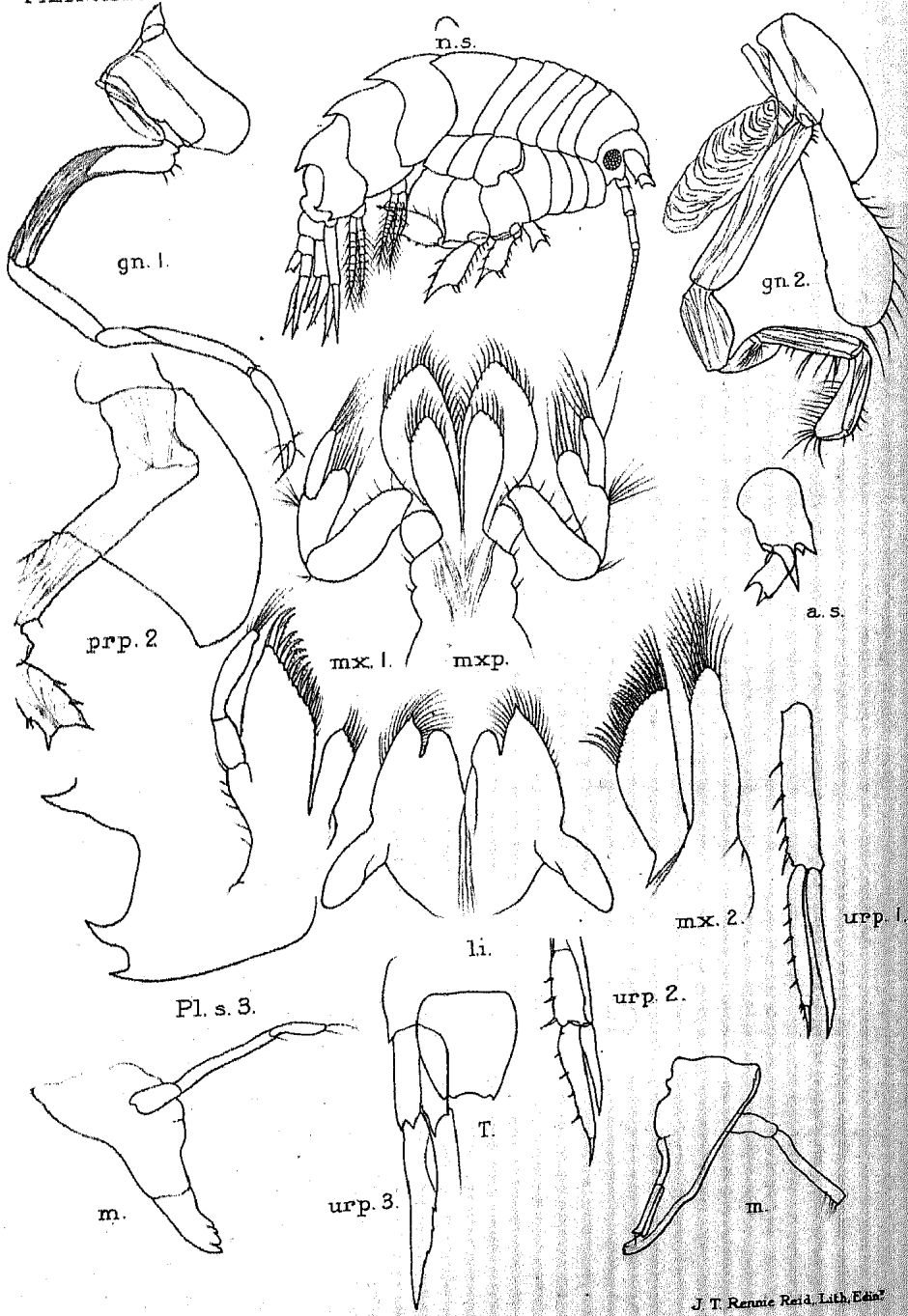
OCHLESIS INNOCENS. *n. sp.*

EXPLANATION OF PLATE XLIX.*

Iphimedia discreta, sp. nov.

n.s.—Line indicating natural size of the specimen figured below.
Pl.s. 3.—Posterior lateral margin of third pleon segment.
a.s.—First two joints of first antenna.
m.m.—Mandibles, third joint of palp on the right of the plate missing.
l.i., mx. 1, mx. 2, mxp.—Lower lip, first and second maxillæ, maxillipeds.
gn. 1, gn. 2, prp. 2.—First and second gnathopods, and part of second peraeopod.
urp. 1, 2, 3, T.—First, second, and third uropods, and telson. In connection with urp. 3, broken lines are given to indicate that one ramus is missing.

The mouth-organs are figured on a uniform scale, higher than that (which is also uniform) for the other details.



Del. T.R.R. Stebbing.

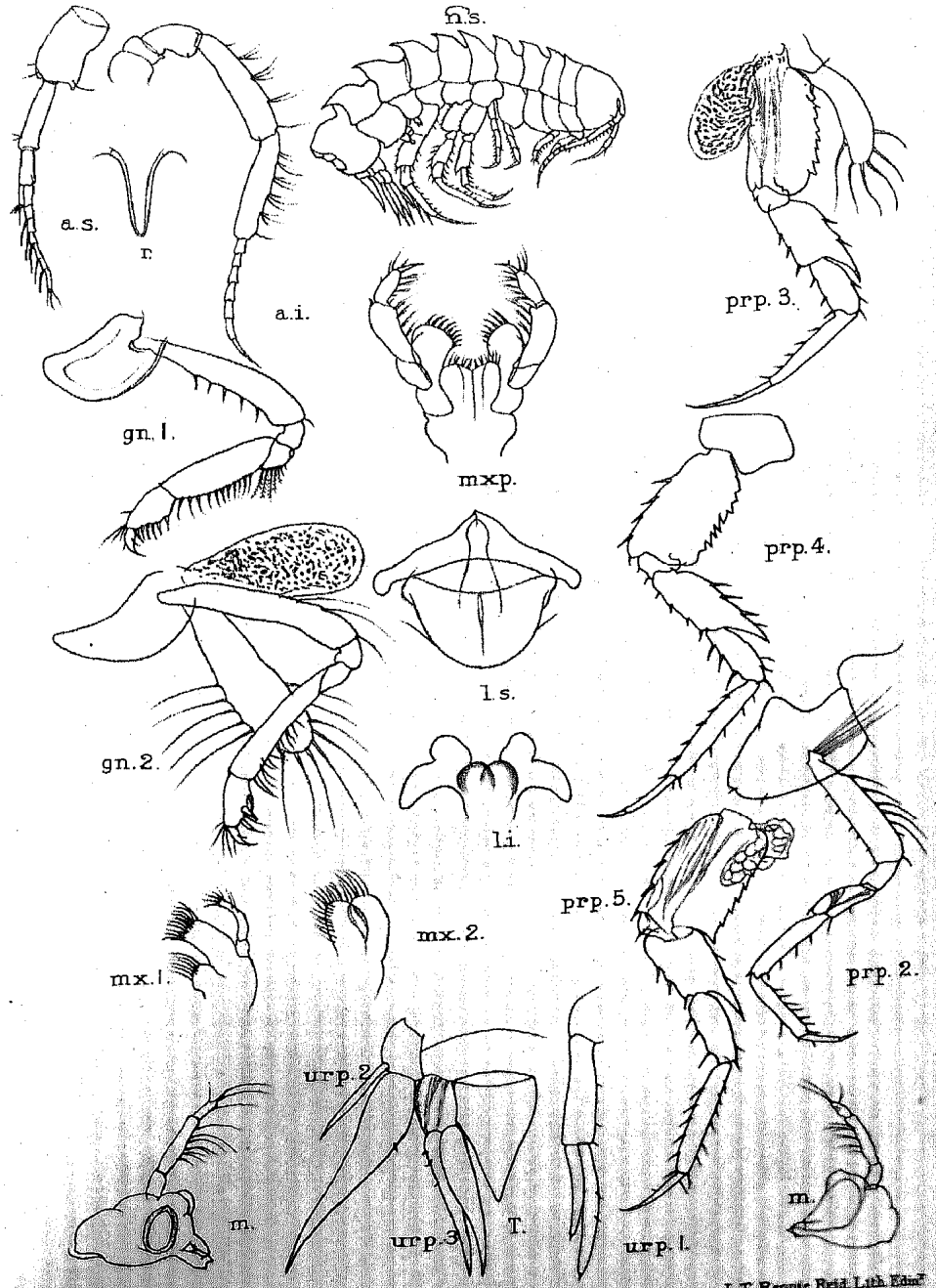
IPHIMEDIA DISCRETA, *n. sp.*

J. T. Rennie Reid, Lith. Edin.r

EXPLANATION OF PLATE L.*

Bruzelia australis, sp.nov.

n.s.—Line indicating natural size of the specimen figured below.
su. r.—Rostrum, flattened out.
a.s., *a.i.*—First and second antennæ.
l.s, *l.i.*—Upper and lower lips.
m.m., *mx. 1.*, *mx. 2*, *mxp.*—Mandibles, first and second maxillæ, maxillipeds.
gn. 1, *gn. 2*, *prp. 2*, *3*, *4*, *5*.—First and second gnathopods, second third, fourth, and fifth peraeopods.
urp. 1, *2*, *3*, *T*.—First, second, and third uropods, and the telson.
All the details are magnified to a uniform scale.



Del. T.R.R. Stebbing.

J. T. Rennie Reid. Lith. Edin.r

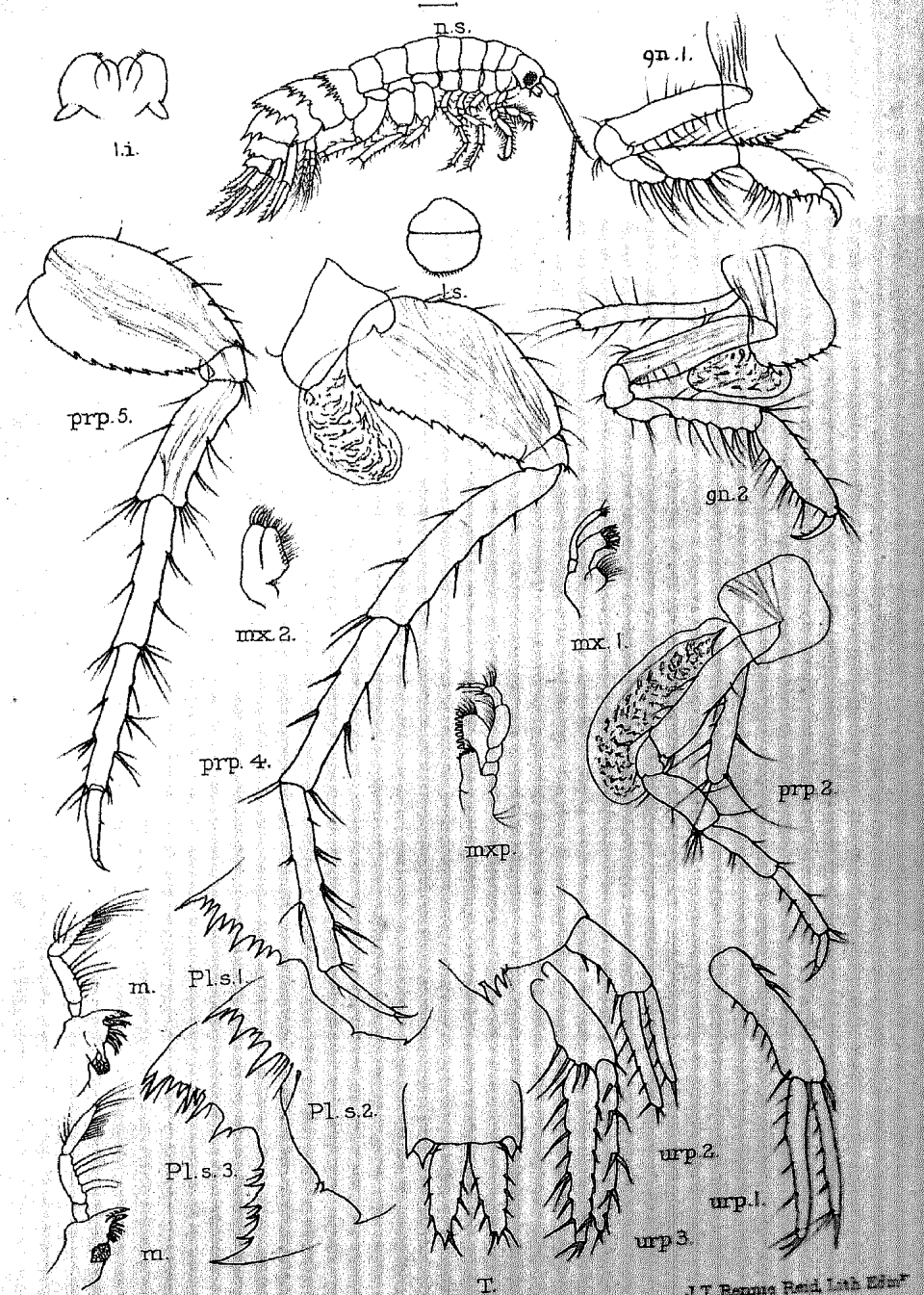
BRUZELIA AUSTRALIS. *n.sp.*

EXPLANATION OF PLATE LI.*

Paraceradocus micramphopus, sp. nov

n s.—Line indicating size of specimen figured below.
Pl.s. 1, 2, 3.—Postero-lateral margins of first three segments of the pleon.
l.s., l.i.—Upper and lower lips.
m.m., mx. 1, mx. 2, mxp.—The mandibles, first and second maxillæ, and one-half of the maxillipeds.
gn. 1, gn. 2.—The first and second gnathopods.
prp. 2, 4, 5.—The second, fourth, and fifth peraeopods.
urp. 1, 2, 3.—The first, second, and third uropods; the postero-lateral margin of the fifth pleon segment shown in connection with the second uropods.
T.—Dorsal view of the telson, in connexion with the sixth pleon segment.

All the details are drawn to a uniform scale, and are taken from a second specimen, not the one figured as (an imperfect) whole.

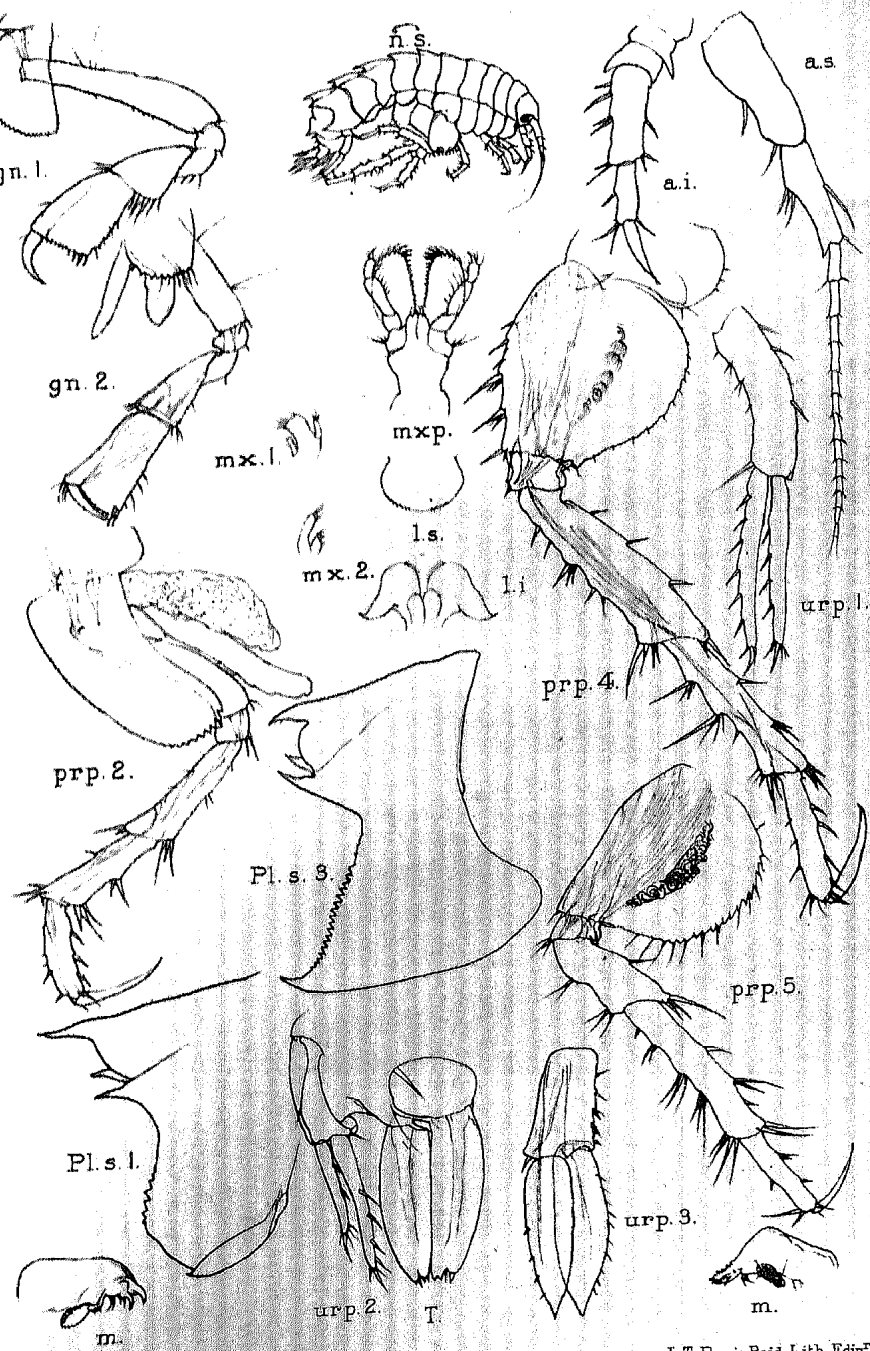


PARACERADOCUS MICRAMPHOPUS, sp.

EXPLANATION OF PLATE LII.*

Paradexamine flindersi (Stebbing).

n.s.—Line indicating natural size of female specimen figured below.
a.s., *a.i.*—First and second antennæ.
l.s., *l.i.*—Upper and lower lips.
m.m., *mx. 1*, *mx. 2*, *mxp.*—Mandibles, first and second maxillæ, and maxillipeds. The maxillæ drawn from a different and rather smaller specimen.
gn. 1, *gn. 2.*—First and second gnathopods, base of second incomplete.
prp. 2, *4*, *5.*—Second, fourth, and fifth peraeopods.
Pl.s. 1, *3.*—First and third pleon segments in profile.
urp. 1, *3.*—First and third uropods.
urp. 2, *T.*—Second uropod and telson in dorsal view, as attached to the compound (fifth and sixth) pleon segment, of which the left side is shown with its two medio-dorsal spines.



Del. T.R.R. Stebbing. J. T. Rennie Reid, Lith, Edin.

PARADEXAMINE FLINDERSI *(Stebbing)*

EXPLANATION OF PLATE LIII.*

Paraoroides unistilus, gen. et sp. nov.

n.s.—Line indicating natural size of specimen figured below.

a.s.♂, *a.s.*—Upper antennæ of adult male, with higher magnification of last joint of peduncle and first of flagellum, to show comparative size of accessory flagellum. The detail figures marked ♂ and the mouth-organs are from the specimen figured as a whole; the other details are from a specimen which is probably a female, with marginal plates undeveloped.

a.i.♂.—Distal part of second antenna of male, penultimate joint of peduncle in part.

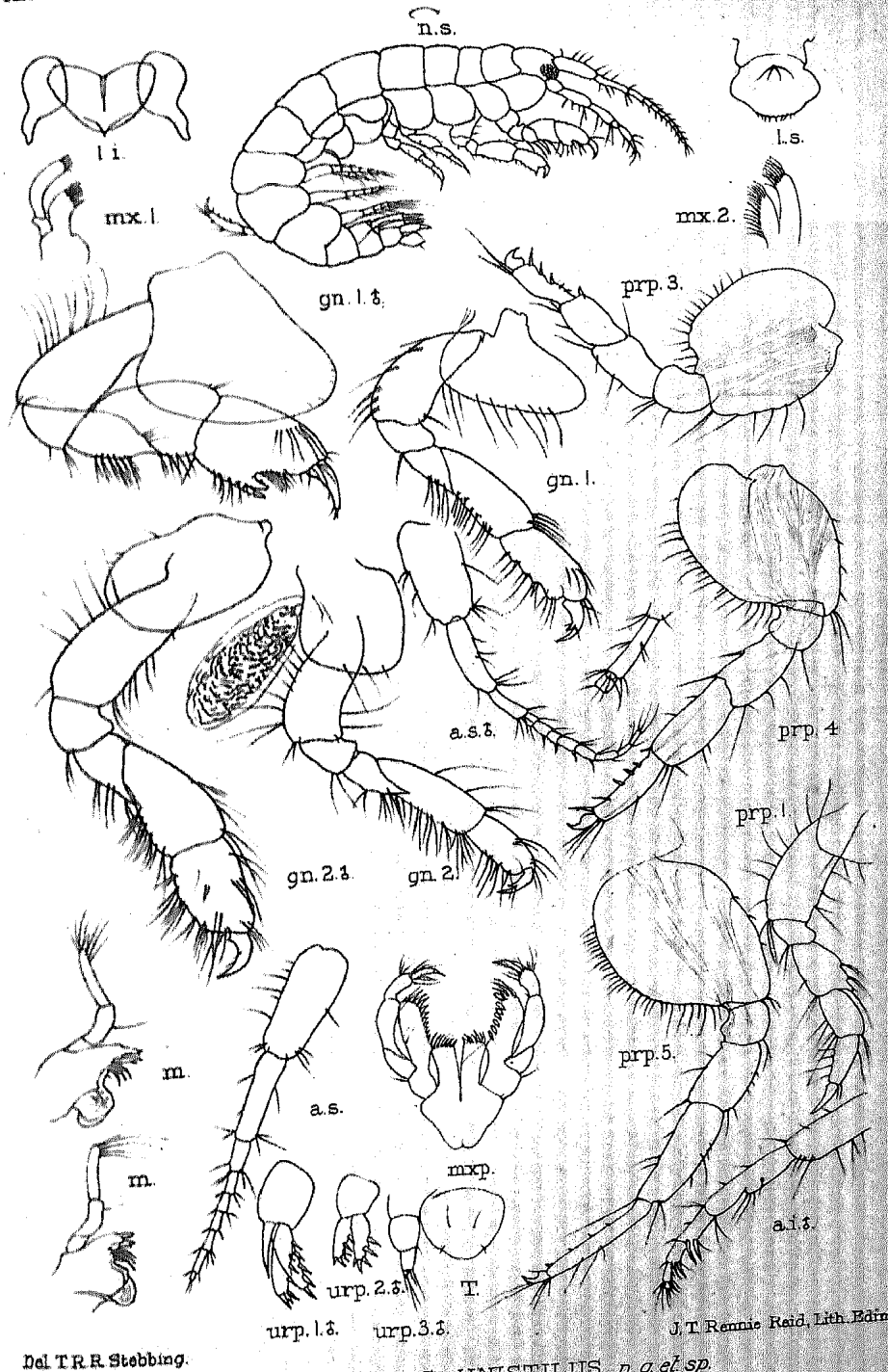
l.s., *l.i.*, *m.m*, *mx. 1.*, *mx. 2.*, *mxp.*—Upper and lower lips, mandibles, first and second maxillæ, and the maxillipeds.

gn. 1♂, *gn. 2*♂.—First and second gnathopods of adult male.

gn. 1, *gn. 2*, *prp. 1*, *3*, *4*, *5*.—First and second gnathopods, first, third, fourth and fifth pereopods of (supposed) female.

urp. 1♂, *2*♂, *3*♂, *T*.—First, second, and third uropods, and telson of adult male.

The mouth-organs and portion of first antenna are magnified on a higher scale than the other details.



Del T.R.R. Stebbing. J.T. Rennie Reid, Lith. Edin.r

PARAOROIDES UNISTILUS, *n.g. et sp.*

EXPLANATION OF PLATE LIV.*

Cheiriphotis australis, sp.nov.

n.s.♂.—Line indicating natural size of male specimen figured below.

a.s.♀, *a.i.*♀.—First and second antennæ of the female.

l.s.♀, *m* ♀, *mxp.*♀.—Upper lip, mandible, and maxillipeds of the female.

mx. 1♂, *mx. 2*♂.—First and second maxillæ of the male, with higher magnification of spines of the first maxilla.

gn. 1♂, *gn. 2*♂, *gn. 1*♀, *gn. 2*♀.—First and second gnathopods of the male and female.

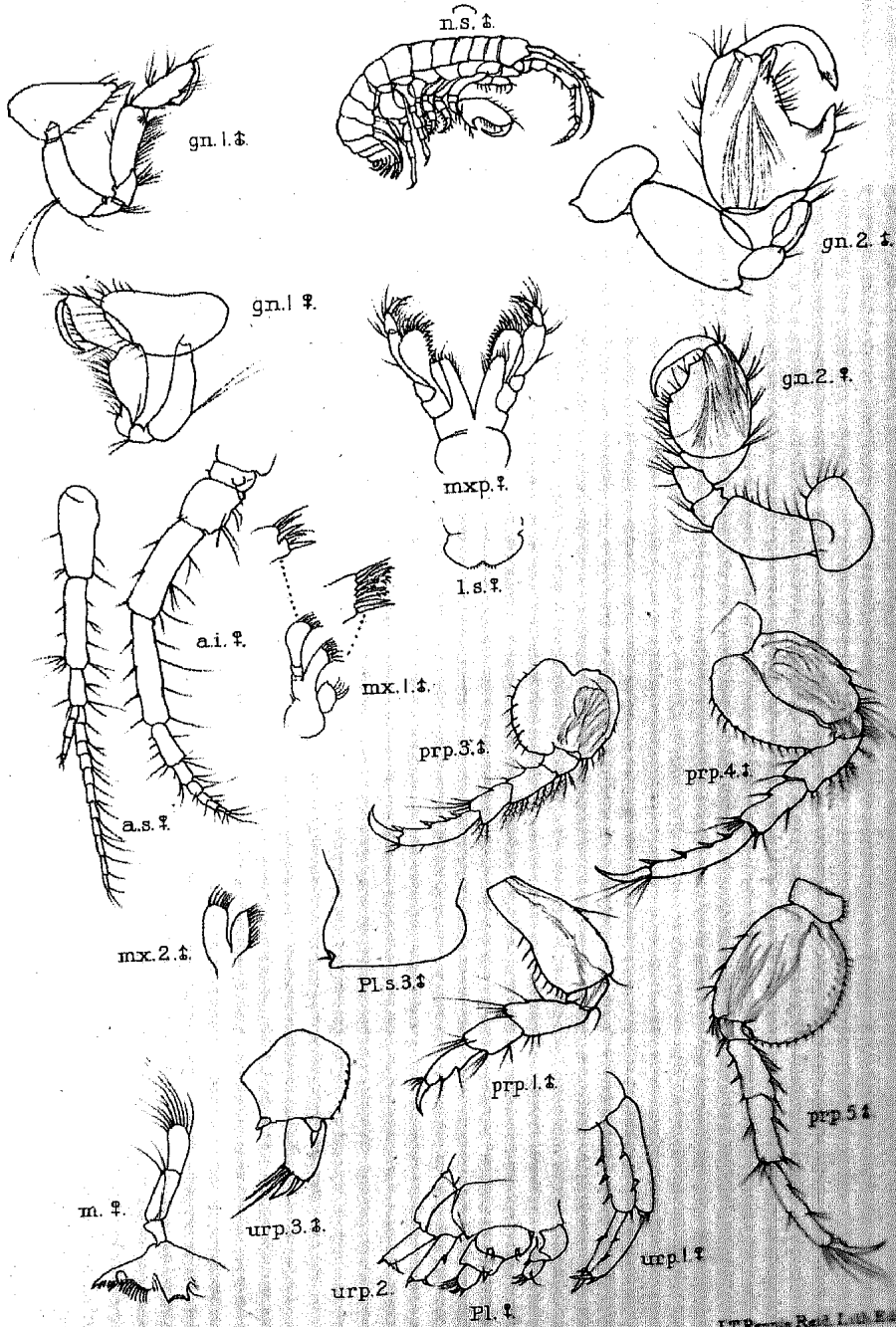
prp. 1, 3, 4, 5♂.—First, third, fourth, and fifth peræopods of the male.

Pl.♀.—Terminal part of pleon of the female, showing in position the telson, one of the second uropods, and the third uropod slightly deflected by pressure.

urp. 1♀.—First uropod of female.

urp. 3♂.—Third uropod of male, more highly magnified than the other details, except the apical spines of mx. 1.

Pls. 3♂.—Part of third pleon segment of male. This, with the telson and uropod of the female, is magnified to the same scale as the mouth-organs, which are more enlarged than the antennæ and limbs.



CHEIRIPHOTIS AUSTRALIÆ. *n.sp.*

EXPLANATION OF PLATE LV.A.*

Cerapus abditus, Templeton.

n.s.—Lines indicating length of the tubes shown in the adjoining figure.

a.s., *a.i.*—First and second antennæ, with last two joints of the first antennæ more highly magnified.

gn.1, *gn.2*.—First and second gnathopods.

Pl. D.—Dorsal view of pleon from the fourth segment to the end.

Pl. V.—Ventral view of the same pleon, much more highly magnified. In this view all three uropods are visible; in the dorsal view the second uropods can scarcely be seen.

All the detail figures are from a male specimen. The tube contained a large female specimen.

EXPLANATION OF PLATE LV.B.*

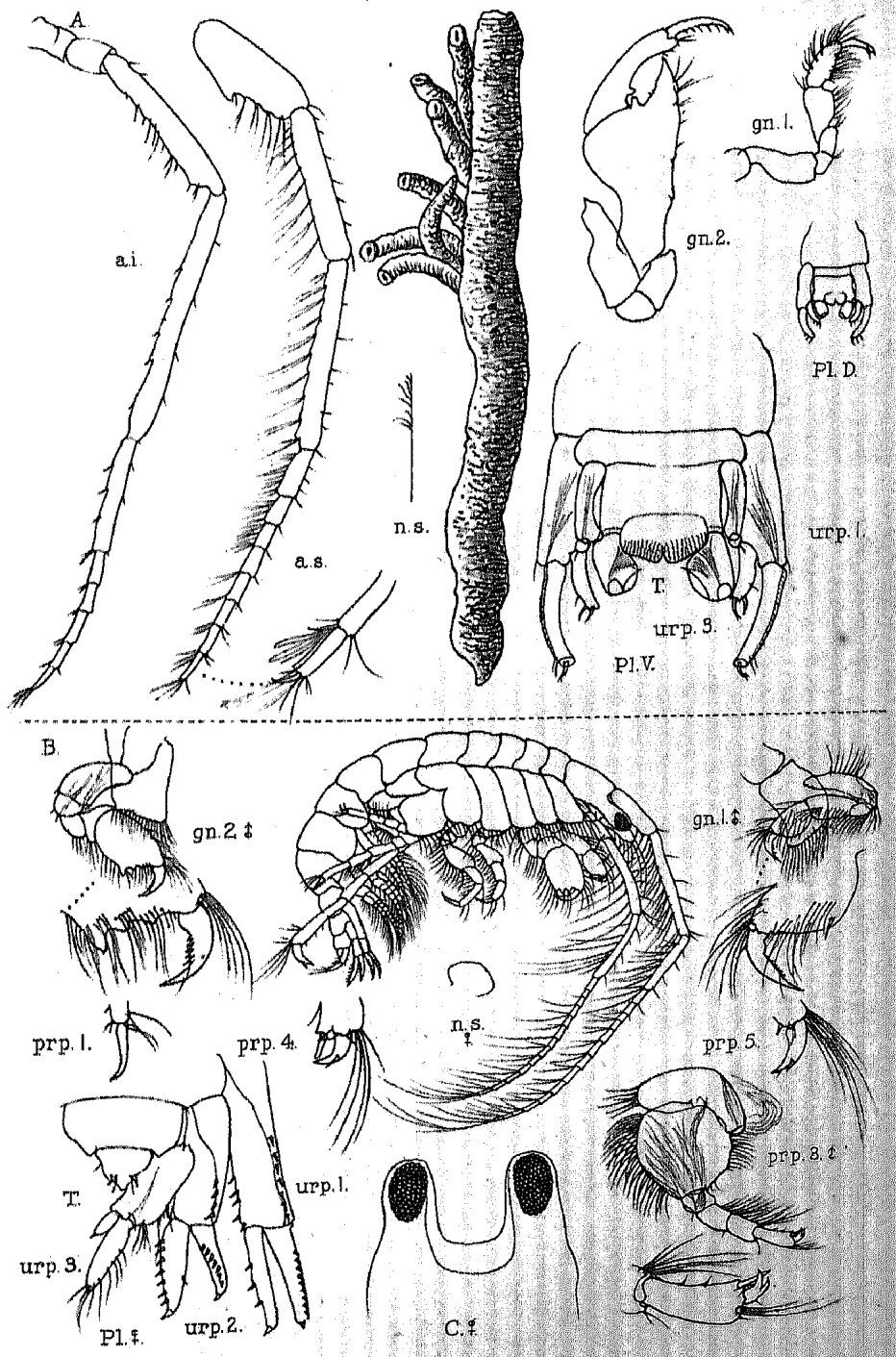
Photis dolichommata, sp.nov.

n.s.—Line indicating natural size of specimen figured above.

C.♀.—Dorsal view of eye-lobes, under slight compression, of a female specimen.

Pl.♀, *urp. 1, 2, 3, t.*—Dorsal view of sixth pleon segment, telson, and uropods of the last-mentioned specimen, also under slight compression.

gn. 1♂, *gn. 2*♂, *prp. 1, 3, 4, 5.*—First and second gnathopods and third peraeopods of a male specimen, with higher magnification of the distal extremities of these limbs, and the ends of the first, fourth, and fifth peraeopods, all these extremities being magnified to the same scale as the above-mentioned details of the female specimen.



Del. T.R.R. Stebbing. J.T. Rennie Reid Lith. Edin.

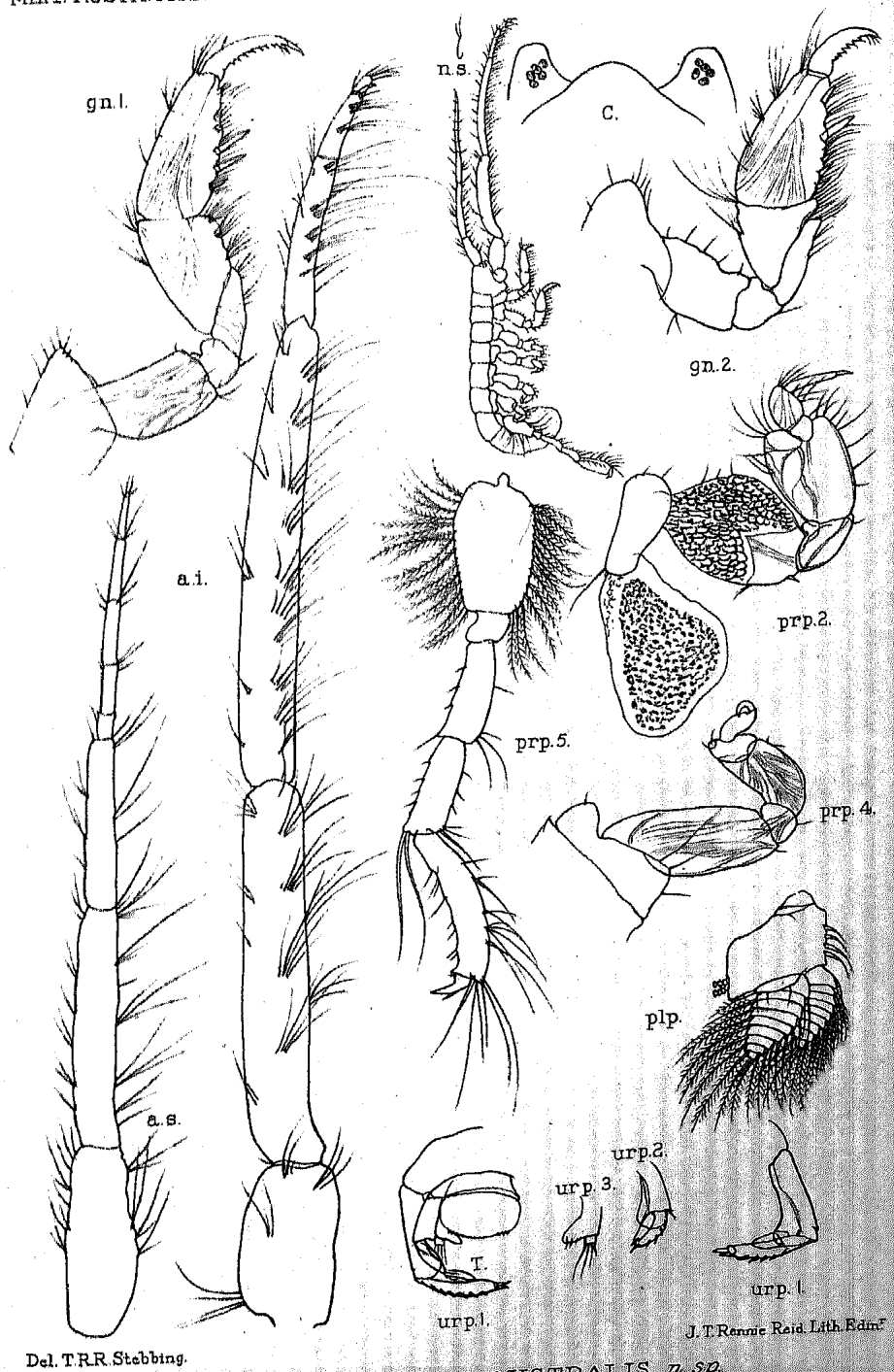
A. CERAPUS ABDITUS. Templeton. B. PHOTIS DOLICHOMMATA. *n.sp.*

EXPLANATION OF PLATE LVI.*

Siphonœcetes australis, sp.nov.

n.s.—Line indicating natural size of specimen figured below.
C.—Front of head, from another specimen, female.
a.s., *a.i.*—First antenna, and all but first two joints of second antenna.
gn.1, *gn 2.*—First and second gnathopods.
prp. 2, *4*, *5.*—First, fourth, and fifth peræopods.
urp. 1, *2*, *3.*—First, second and third uropods.
T., *urp. 1.*—Dorsal view of part of pleon, showing the three uropods and telson in position, the uropods, however, not so closely folded upon one another as when first extracted from the shell.

All the detail figures are drawn to the same scale of magnification, and all are taken from the specimen figured in full, except the dorsal view of the front of the head.



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SIPHONŒCETES AUSTRALIS. n. sp.

EXPLANATION OF PLATE LVIII.A.*

Dryopoides westwoodi, Stebbing.

gn.1, 2♂, *gn.1*, 2♀.—First and second gnathopods of male and female.

prp.1, *3*, 5♂, *prp.1*, *3*♀.—First, third, and fifth peræopods of the male, first and third of the female.

urp 1, *2*, *3*, *T*.♂.—First, second, and third uropods, and telson of male, in dorsal view.

All the figures are drawn to the same scale.

EXPLANATION OF PLATE LVII.B.*

Gitanogeiton sarsi, gen. et sp. nov.

n.s.—Line indicating length of specimen from which the illustrations were drawn.

a.s., *a.i.*—First antenna and peduncle of second.

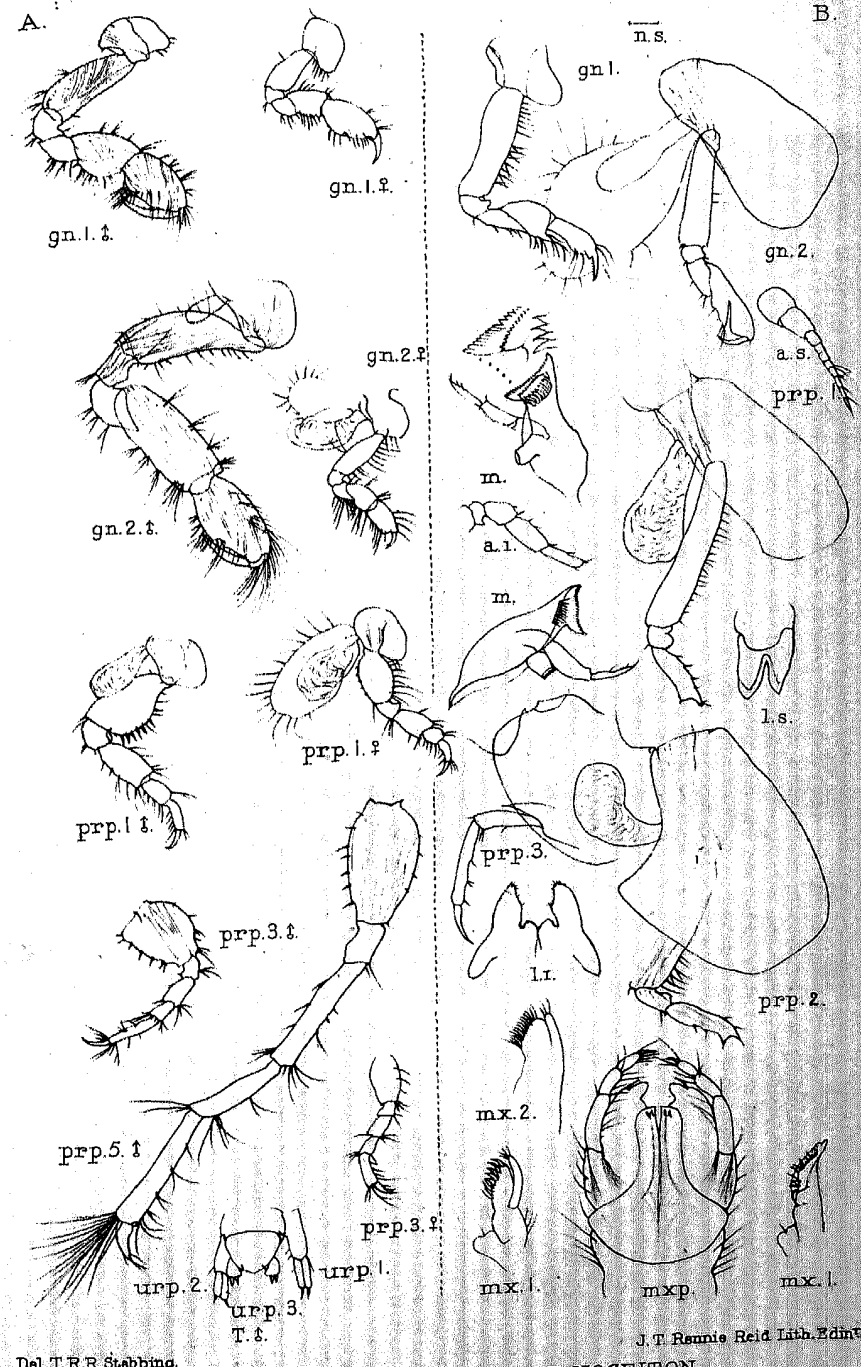
l.s., *l.i.*, *m.m.*—Upper and lower lips and mandibles, with higher magnification of parts of the cutting plates and spine-row on left mandible.

mx.1, *mx.2*, *mxp.*—First maxillæ, one of the second maxillæ, and the maxillipeds.

n.1, *gn.2.*—First and second gnathopods.

prp.1, *2*, *3*.—Parts of first, second, and third peræopods.

The mouth-organs are magnified on a higher scale than the other details.



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A. DRYOPOIDES WESTWOODI, Stebbing.

B. GITANOGEITON SARSI, n.g. et sp.

EXPLANATION OF PLATE LVIII.*

Podocerus hystrix, sp.nov.

n.s.♂.—Line indicating natural size of male specimen figured above.

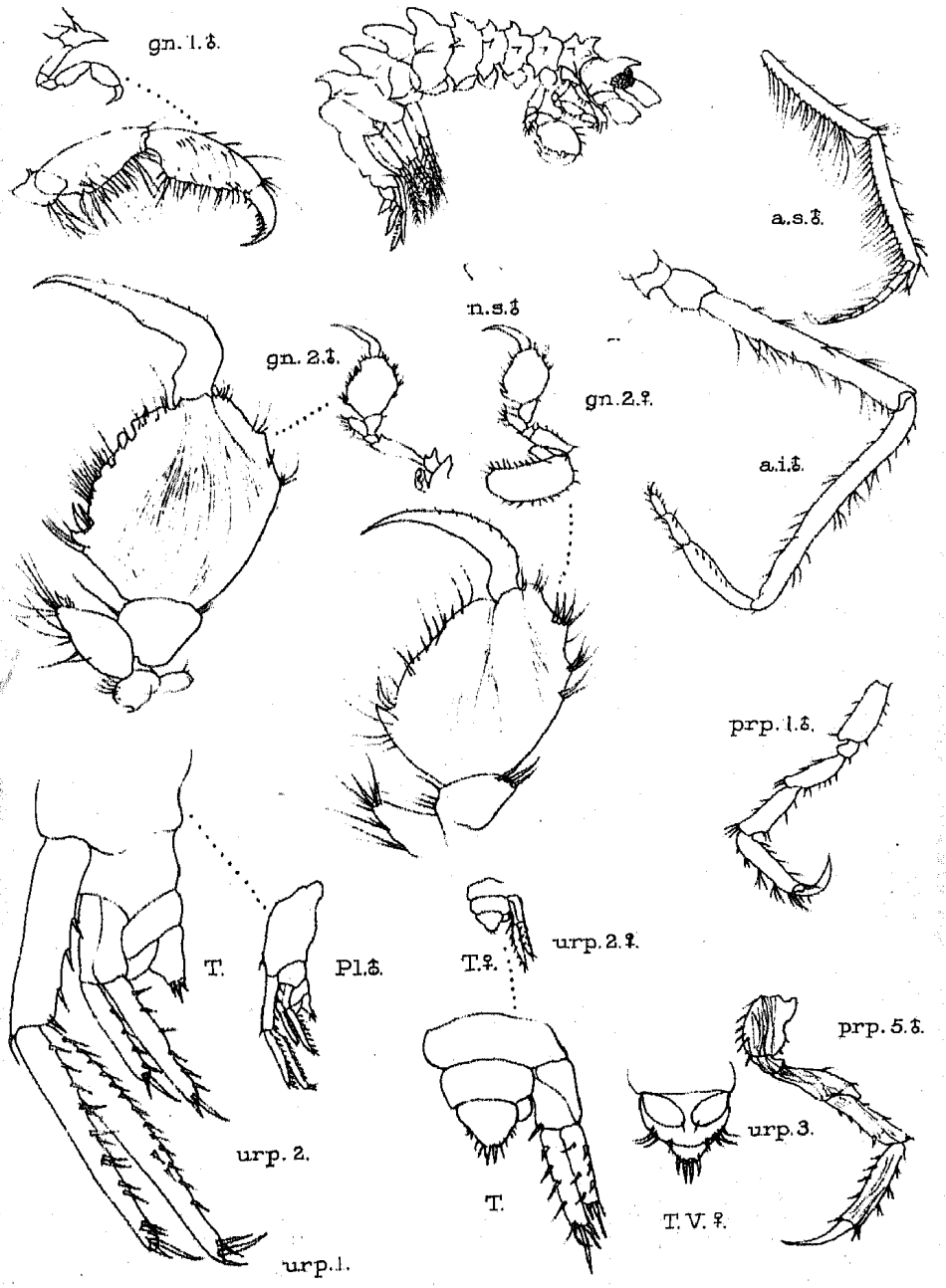
a.s.♀, *a.i.*♂.—First antenna, without first joint, and second antenna of a male.

gn.1♂, *gn.2*♂, *gn.2*♀.—First and second gnathopods of a male and second gnathopod of a female, with higher magnification of distal part of each limb.

prp.1, *prp.5*.—First and fifth peraeopods of a male.

T.♀, *urp. 2*♀, *T. V.*♀, *urp.3*.—Dorsal view of second and third uropods and telson of a female specimen, magnified to the same lower and higher scales as the gnathopods; and ventral view of third uropods and telson from the same specimen still more highly magnified.

Pl.♂, *urp.1*, *urp.2*, *T.*—Side view of male pleon from the fourth segment to the end, with the three uropods and telson in position; the same more highly magnified, with omission of most of the long fourth segment.



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PODOCERUS HYSTRIX, *n. sp.*

EXPLANATION OF PLATE LIX.A.*

Icilius danæ, Stebbing.

Per.s.7, *Pl.s.1*, *Pl.s.2*.—Parts of seventh peraeon segment and first two pleon segments, flattened out.

prp.5.—Fifth peraeopod to end of fourth joint.

plp.1.—First pleopod.

urp.1, *2*, *3*, *T*.—First and second uropods, and dorsal view of sixth pleon segment carrying the third pair of uropods, without inner branch, and the telson, of which the apex is more highly magnified.

EXPLANATION OF PLATE LIX.B.*

Icilius punctatus, Haswell.

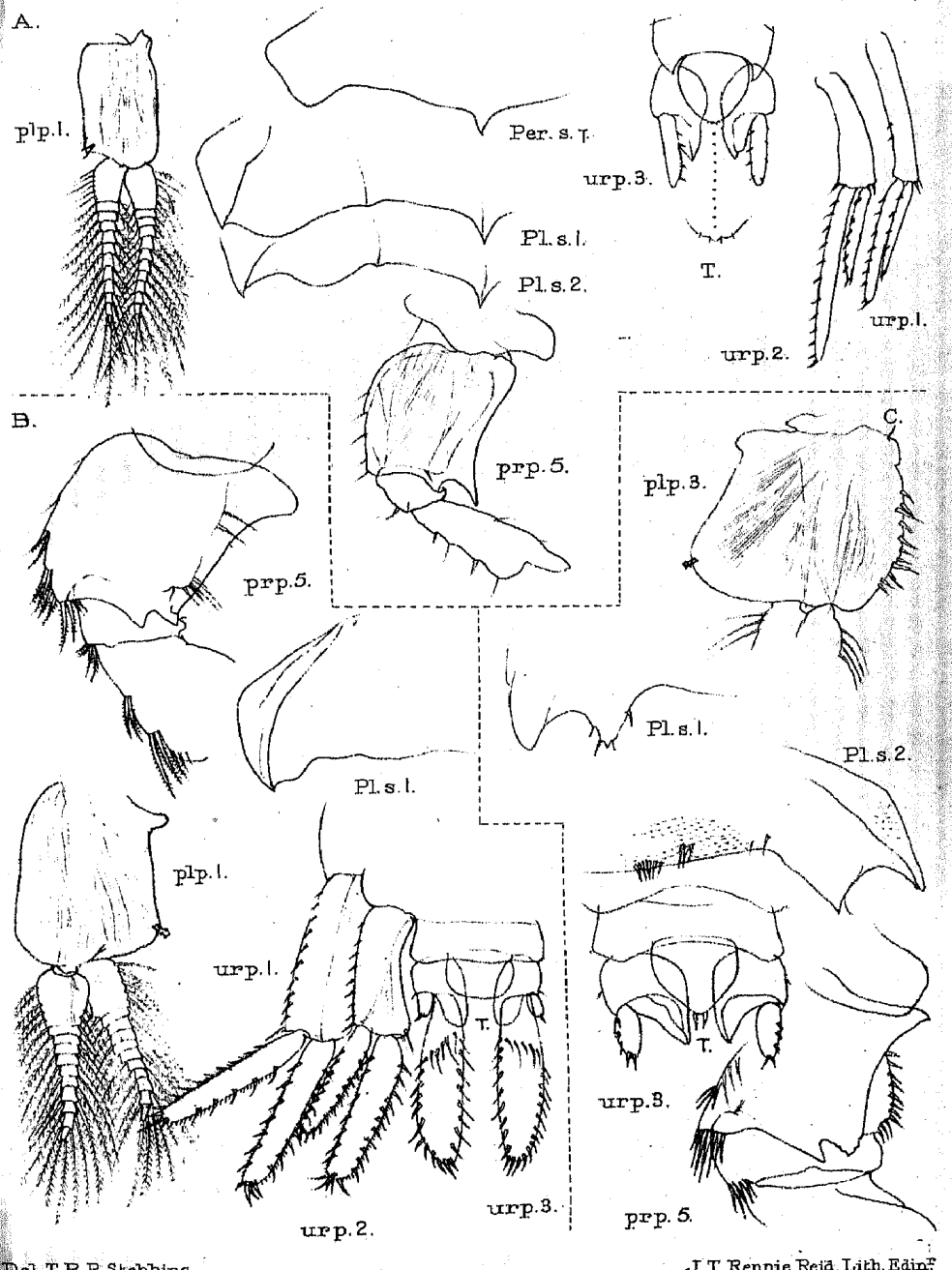
Pls.1.—Part of first pleon segment flattened out.
prp.5.—Fifth peraeopod to midway of fourth joint.
plp.1.—First pleopod.
urp.1, 2, 3, T.—Dorsal view of sixth pleon segment carrying the third pair of uropods and the telson, with the first and second uropods in position, but a little flattened out.

EXPLANATION OF PLATE LIX.c.*

Icilius australis, Haswell.

Pl.s.1, *Pl.s.2*.—Parts of first two pleon segments flattened out.
prp.5.—Fifth peraeopod partially shown as far as base of fourth joint.
plp.3.—Peduncle and base of rami of third pleopod.
urp.3, *T*.—Sixth segment of pleon carry the third uropods, without inner branch, and the telson.

In plate LIX.A, B, and C, all the figures are to a uniform scale of magnification, except the tip of telson in A.



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A. ICILIUS DANÆ, Stebbing
B. I. PUNCTATUS, Haswell C. I. AUSTRALIS, Haswell.

EXPLANATION OF PLATE LX.*

Dodecas decacentrum, sp.nov.

n.s.♂.—Lines indicating natural size of male specimen figured below, without its fifth peraeopod.

a.s.♀.—First antenna of a female specimen.

a.i.♂.—Second antenna of a male specimen.

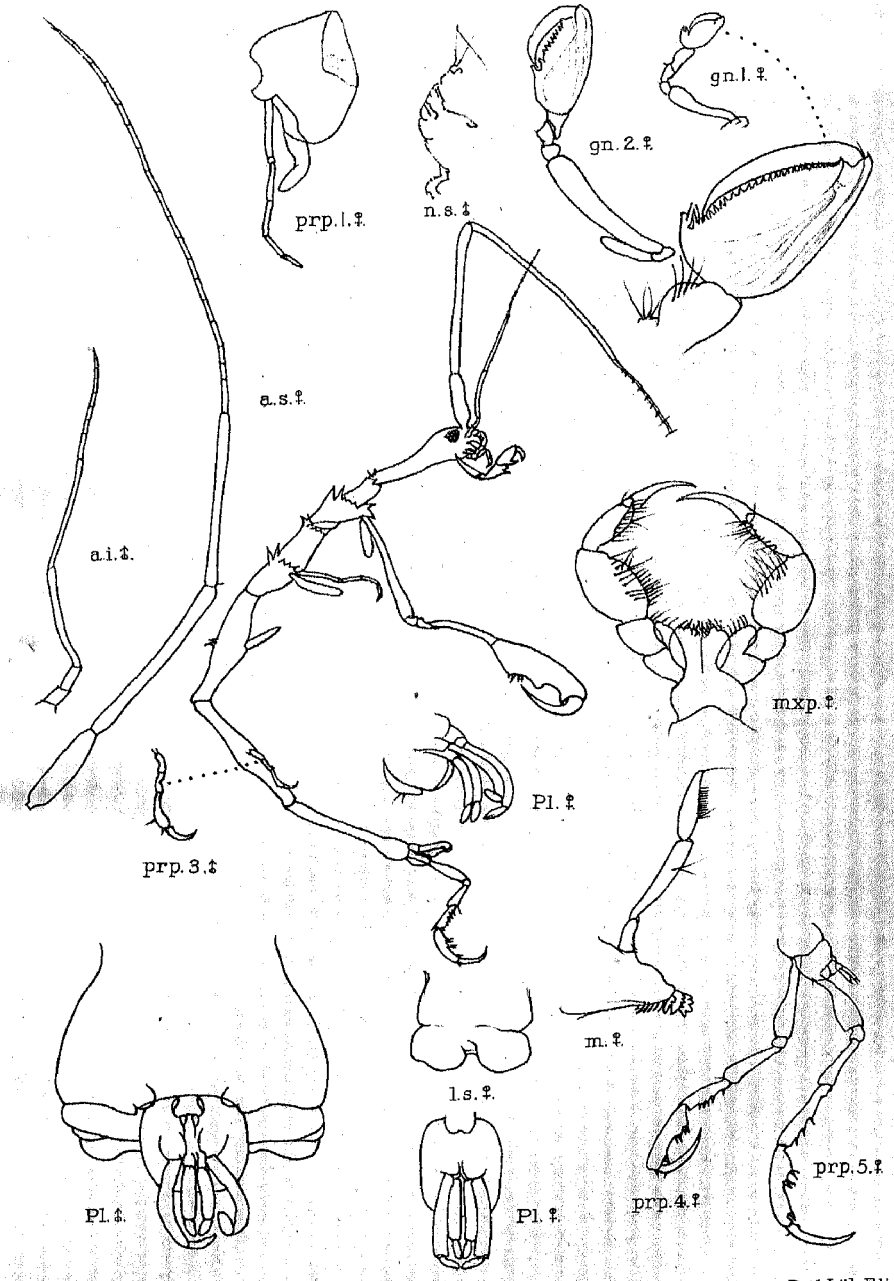
l.s.♀, *m.*♀, *mxp.*♀.—Upper lip, mandible, and maxillipeds of a female.

gn.1♀, *gn.2*♀.—First gnathopod and second gnathopod of a female, with further enlargement of distal portion of the first.

prp.1♀, *prp.3*♂, *prp.4*♀, *prp.5*♀.—The first peraeopod of a female with marsupial plate attached, third peraeopod of a male, fourth of a female and fifth of the same specimen, in attachment to the last peraeon segment, with the pleon in profile.

Pl.♀, *Pl.*♀, *Pl.*♂.—Pleon of each sex, the upper figure showing that of the female in lateral view, the lower showing it in ventral aspect, the figure on the left giving the same aspect of the male pleon, in attachment to the last peraeon segment.

These figures of the pleon, together with the mouth-organs and distal part of first gnathopod, are much more highly magnified than the other details.



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DODECAS DECACENTRUM. *n.sp.*